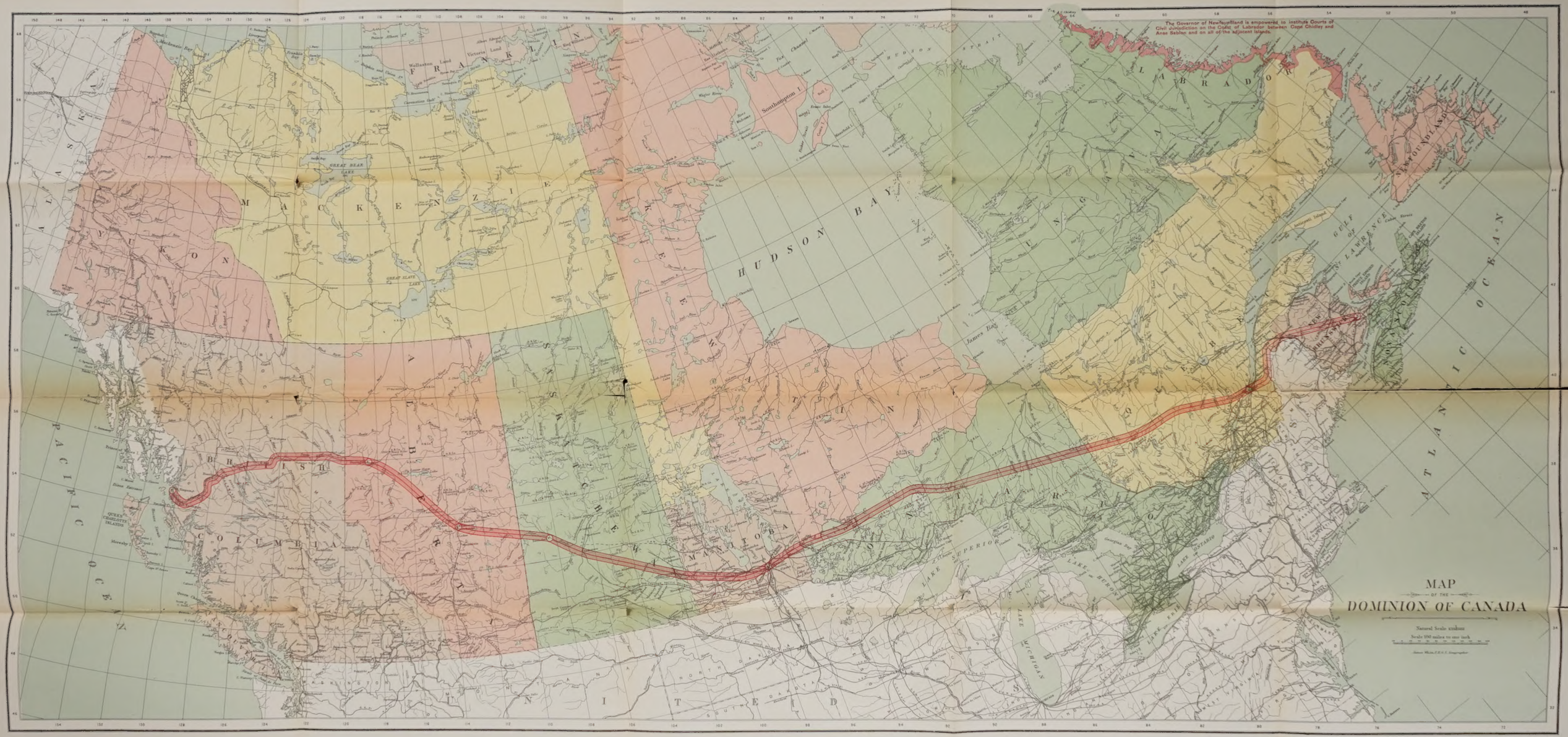
Dominion of Canada



La course générale du Chemin de fer Transcontinental est indiquée par la ligne rouge pesante. Aucune partie du chemin n'est encore localisée.

The general course of the proposed Transcontinental Railway is shown by the broad red line. No portion of the road is yet located.

Die allgemeine Richtung der beabsichtigten Transkontinentaleisenbahn ist durch die breite rote Linie gezeichnet. Kein Theil der Bahn ist bis jetzt definitiv bestimmt.

MAP OF ONTARIO AND QUEBEC

(DOMINION OF CANADA)

1905

Prepared under directions of HON. SYDNEY A. FISHER,
Minister of Agriculture, Ottawa.

MAP OF
Nova Scotia, New Brunswick, Prince Edward Island and Cape Breton

(DOMINION OF CANADA)

1905

Prepared under directions of HON. SYDNEY A. FISHER,
Minister of Agriculture, Ottawa.

PROVINCE OF QUEBEC
STATE OF MAINE
INTERNATIONAL BOUNDARY
NEW BRUNSWICK
NOVA SCOTIA
PRINCE EDWARD I.D.
CAPE BRETON I.D.
GULF OF ST LAWRENCE
BAY CHALEUR
MIRAMICHI BAY
NORTHUMBERLAND STRAIT
BAY OF FUNDY
MINAS BASIN
MINAS CHANNEL
CHIGNECTO CHANNEL
ATLANTIC OCEAN
Miscou Id.
Shippegan Id.
North Cape
East Pt.
C. St Lawrence
C. North
C. Egmont
C. Mabou
C. Tormentine
Cape Chignecto
Cape Split
Cape Sable
Seal I.
Grand Manan Id.
Campobello I.
Victoria
Gloucester
Northumberland
Kent
Westmorland
Albert
Charlotte
York
Sunbury
Queens
Carleton
Restigouche
Victoria
Inverness
Richmond
Cumberland
Colchester
Pictou
Antigonish
Guysborough
Digby
Annapolis
Kings
Hants
Lunenburg
Queens
Shelburne
Yarmouth
Halifax
Longitude West from Greenwich

MACKENZIE DISTRICT
KEEWATIN
HUDSON BAY
ALBERTA
SASKATCHEWAN
MANITOBA
BRITISH COLUMBIA
ROCKY MOUNTAINS
MAP OF
MANITOBA
AND
NORTH-WEST TERRITORY
(DOMINION OF CANADA)
1905
Prepared under direction of HON. SYDNEY A. FISHER, Minister of Agriculture, Ottawa.
BOUNDARY BETWEEN UNITED STATES AND CANADA
Great L.
Athabasca L.
Lake Claire
Peace River
Athabasca River
Slave River
Mackenzie River
Great Slave L.
Great Bear L.
Churchill River
Saskatchewan River
Red Deer R.
South Saskatchewan
Qu'Appelle R.
Assiniboine R.
Red River
Lake Winnipeg
Lake Manitoba
Lake Winnipegosis
Lake of the Woods
Hudson Bay
James Bay
Edmonton
Calgary
Regina
Winnipeg
Brandon
Prince Albert
Battleford
Moose Jaw
Medicine Hat
Fort Resolution
Fort Providence
Fort Simpson
Fort McMurray
Fort Chipewyan
Fort Vermilion
Fort Smith
Fort Churchill
Fort Nelson
Fort Liard
Fort Rae
Fort Reliance
Fort Norman
Fort Wrigley
Fort Macleod
Fort Saskatchewan
Fort Pelly
Fort Ellice
Fort Alexander
Fort Frances
Fort Francis
Fort William
Port Arthur
Rainy L.
Lake of the Woods
Lake Athabasca
Lake Claire
Great Slave L.
Great Bear L.
Wollaston Lake
Reindeer L.
Cree L.
Buffalo L.
Lake la Ronge
Montreal Lake
Lac la Biche
Athabasca Landing
Peace River Landing
Fort McMurray
Fort Chipewyan
Fort Resolution
Fort Providence
Fort Simpson
Fort Liard
Fort Nelson
Fort Vermilion
Fort Smith
Fort Churchill
Fort Rae
Fort Reliance
Fort Norman
Fort Wrigley
Fort Macleod
Fort Saskatchewan
Fort Pelly
Fort Ellice
Fort Alexander
Fort Frances
Fort William
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Rainy L.
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Wollaston Lake
Reindeer L.
Cree L.
Buffalo L.
Lake la Ronge
Montreal Lake
Lac la Biche
Athabasca Landing
Peace River Landing

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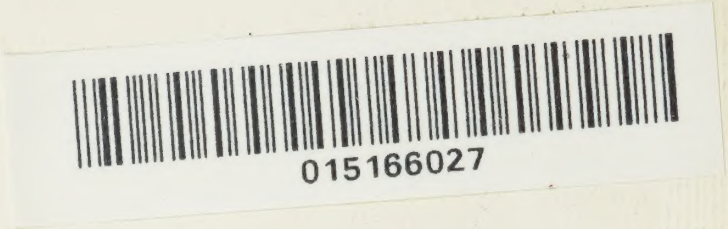

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PARLIAMENT HOUSE AND GOVERNMENT BUILDINGS,
OTTAWA

CANADA

ITS

HISTORY, PRODUCTIONS

AND

NATURAL RESOURCES.

PREPARED UNDER THE DIRECTION OF

THE HONOURABLE SYDNEY FISHER,

MINISTER OF AGRICULTURE, CANADA.

The Universal and International Exhibition

LIÉGE, 1905.

DEPARTMENT OF AGRICULTURE OF CANADA, OTTAWA.

1905.

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CANADA.

I.

PHYSICAL FEATURES.

Canada comprises the northern half of the continent of North America. It has the area upon which to build an empire. The Dominion consists of 3,745,574 square miles. It is bounded on the south by the Great Lakes and the United States; on the west by the Pacific Ocean and Alaska; on the north by the Arctic Ocean, and on the east by the Atlantic and the arms of that ocean.

From east to west Canada stretches out three thousand miles; from south to north it extends fifteen hundred miles.

The area of Canada is but little less than that of the whole continent of Europe. It is almost twice the size of India. It is as large as the United States with its dependencies of Hawaii and the Philippine Islands. It forms one-third of the entire British Empire. Its capacity for supporting population is so great that it can hardly be surmised at present. It is a land of great plains, of splendid forest stretches, of lofty mountains, of wonderful rivers, of wide-spreading lakes and rich mineral deposits.

Rivers and Lakes.

The eastern portion of Canada is drained by the St. Lawrence system. The St. Lawrence River proper is 755 miles in length. It has as tributaries the Saguenay, 100 miles long, draining Lake St. John; the St. Maurice, 400 miles long; the Ottawa, 750 miles long, draining Lake Temiskaming; the Richelieu, 75 miles long, draining Lake Champlain, and half a dozen other considerable streams. The St. Lawrence is the outlet of the greatest chain of lakes on the globe. The first of these is Lake Superior, 354 miles long; Lake Michigan, 316 miles;

Lake Huron, 207 miles; Lake St. Clair, 26 miles; Lake Erie, 239 miles; and Lake Ontario, 193 miles. From the last of these the St. Lawrence flows to the sea. These lakes have an area of 95,000 square miles. On them rides a great fleet of commercial craft. From the mouth of the St. Lawrence to the western end of Lake Superior there is a continuous navigable waterway, 2,384 miles, into the heart of the continent.

Maritime Province Rivers. There is one river of great size in the Eastern or Maritime provinces. This is the St. John, 500 miles long, which rises in the State of Maine, and, flowing through the Canadian province of New Brunswick, empties into the Bay of Fundy. It drains an area of 26,000 square miles, half of which is in New Brunswick. The Restigouche and the Miramichi are two other considerable rivers of this portion of Canada.

Rivers of the West and North. There are many other very large rivers besides these. In the Territories and Manitoba are the Mackenzie River, 2,400 miles in length; the Copper Mine and Great Fish Rivers, which flow into the Arctic Ocean; the Saskatchewan River, 1,500 miles; the Red River and its tributary, the Assiniboine, which flow into Lake Winnipeg, discharging thence through the Nelson River and the Churchill; the Haye and other rivers, which flow into the Hudson Bay, draining into it the waters of an area estimated at 370,000 square miles.

In British Columbia are the Fraser River and the Columbia, 1,200 miles; and in the Yukon District is the Yukon River, which carries off the surplus waters of a great tract of country in Canada before flowing into the sea on the western side of Alaska.

Connected with these and other rivers are lakes of large size. Lake of the Woods, 1,500 square miles; Lake Manitoba, 1,900; Great Bear Lake, 11,200; Great

ST. LAWRENCE RIVER, FROM DUFFERIN TERRACE, QUEBEC.

Slave Lake, 10,100; Athabasca, 4,400; Winnipeg Lake, 9,400; Winnepegosis, 2,030.

Mountains of the West.

The principal mountains of Canada are in the West, running parallel with the Pacific Coast. This Canadian cordillera covers the greater part of British Columbia, and the whole of the Yukon Territory. The parallel ranges are above four hundred miles in width, or more than twice as broad as England at its point of greatest breadth. The Coast range runs along the Pacific; the Rockies proper lie to the east. Between them are the Selkirks, the Gold, the Cariboo, the Cassiar and other ranges. The principal peak in Canada is Mount Robson, 13,700 feet high.

Eastern Elevation.

On the eastern side of Canada, two thousand miles nearer to Europe than the Rockies, is the Appalachian range. While of considerable height in the United States, they are low and inconsiderable in that portion of Canada known as the Gaspe Peninsula.

There is a **U** shaped elevation of land about Hudson's Bay. This is the most ancient portion of the continent. It was the first to emerge, and was the beginning of the North American Continent.

Woodland and Plain.

Between the Rockies and the Appalachian elevations lie the woodland and the prairie belts. The woodland is in the east, and has a width of 2,300 miles. It includes the whole of Ontario and Quebec, extending westward to Manitoba.

The prairie belt has a breadth of 1,000 miles, extending from the eastern boundary of Manitoba westward to the Rocky Mountains.

Political Subdivisions.

For purposes of administration, Canada is divided into nine provinces and five territorial districts. Of the fourteen, eleven have salt water for a portion of their boundaries, three are completely inland. One of

the eleven is on the Pacific Ocean, four on the Arctic, four on Hudson's Bay, four are washed by the Atlantic and the Gulf of St. Lawrence.

Canada can be statistically stated as follows:—

Provinces and Districts.	Date of Organization or Admission	Area, Square Miles.		
		Water	Land	Total
Original Confederation—				
Ontario	July 1, 1867	40,354	220,508	260,862
Quebec	" 1, 1867	10,117	341,756	351,873
Nova Scotia	" 1, 1867	360	21,068	21,428
New Brunswick	" 1, 1867	74	27,911	27,985
Provinces admitted—				
Manitoba	" 15, 1870	9,405	64,327	73,732
British Columbia	" 20, 1871	2,439	370,191	372,630
Prince Edward Island	" 1, 1873	.....	2,184	2,184
Alberta	July 1, 1905	3,312	250,653	253,965
Saskatchewan	" 1, 1905	6,927	243,192	250,119
Districts created—				
Keewatin	Apr. 12, 1876	13,419	456,997	470,416
Yukon	June 13, 1898	649	196,327	196,976
Mackenzie	Oct. 2, 1895	29,548	532,634	562,182
Ungava	" 2, 1895	5,852	349,109	354,961
Franklin	" 2, 1895	.....	500,000	500,000
Totals	.....	125,755	3,619,819	3,745,574

II.

SOCIAL, POLITICAL AND BUSINESS CONDITIONS.

Canada began the twentieth century with about six million inhabitants, the number with which the United States began the nineteenth century. Its destiny is as great and manifest as was that of the great American republic. Sir Wilfrid Laurier, the Prime Minister of the Dominion, recently prophesied that as the greatest thing of the last century was the development of the United States, the greatest political feature of the present century is to be the development of Canada. All who

ST. JOHN RIVER, ST. JOHN, N.B.

have examined the resources, the political system and the social conditions of Canada, endorse the prophecy. Canada's opportunity to-day is as bright as was that of the United States a century ago.

A Land of Workers.

The social condition of the Dominion is a healthy and agreeable one. Canada is a land of industry. Drones are few. There is no leisure class, no aristocracy, no great landed class, no professional military class.

Though there are poor men in the Dominion, there is no destitution. The poor and the rich are alike busy, working on the development of the country. The poor work for their daily bread and a competence for their declining days. The wealthy are busy because it was by industry they amassed their fortunes and the care of their investments requires constant attention. Throughout the land every man is held to be as good as his neighbor.

The Reward of Industry.

It has been demonstrated, thousands of times, that Canada will yield a living, a home, and at least a modest fortune to every man who will apply energy, intelligence and perseverance to farming, lumbering, mining or fishing. On the prairies of the West, where the land is practically free and ready for the plow, a competence is gained with probably greater ease and in a shorter time than any where else in the world.

Responsible Government.

There is complete freedom in Canada. Though a dependency of the British Crown, the colony is permitted to govern itself. It has been doing this for a half century with as much freedom as the United States, from any trans-Atlantic control. In the making and administering of laws the people have shown capacity.

While the Governor-General, as the representative of the King of Great Britain, is the nominal head, government is carried on by a cabinet, chosen from

among the members of Parliament. The administrators are therefore elected by the people. They consult only the desires of the Canadian people in framing laws and having them administered. A government which attempted to run counter to the wish of the majority of the people would be at once replaced by another government which would do as the people desired. This is true of the governments of the several provinces as well as of the central federal government.

Practically every citizen of twenty-one years has a vote for both federal and provincial representatives. Every man, therefore, has a share in the government.

Business of the Government

The consequence of this responsible system has been a steady effort by all governments to develop the resources of the country and to improve the conditions of the people. To this end commerce has been assisted by the construction of a great canal system to improve the natural waterways; by the building and aiding in the building of railroads; by assisting steamship lines. Highways have been made wherever settlement has gone. The postal system has been extended throughout the settled portions of the land. Schools have been established and are maintained in all the provinces for the free instruction of all children. The wilderness has been explored, surveyed and opened up for settlement. Instruction has been given farmers, dairymen, fruit-growers, and stock-raisers in the best methods of their several businesses. Thoroughbred cattle, sheep, swine, and horses have been imported for the purpose of improving the Canadian breed. The wants of foreign markets have been studied. Canadian producers of butter, cheese, bacon, poultry, and fruit have been induced to provide what the foreign cosumer wants. Finally, the Canadian Government has undertaken to advertise the excellence of Canadian wares in the trans-Atlantic markets.

Immigration and Capital.

The country is to-day being run as a business institution upon lines of progressive improvement. A part of the business scheme is the encouragement of immigrants and capital to come to the country. It is realized that the country is too big for the six million inhabitants or their children to occupy it. Therefore the best classes of Europe are being invited to come to the country and share in the benefits of its development. Capital is also invited to come and reap profits from the commerce, the transportation, the mining and the manufacturing of the country. It is the honest belief of Canadians that neither the immigrant or the foreign capitalist will ever regret casting his fortunes with the future of Canada.

Security of Life and Property.

There has never, in Canada, been any of the wild lawlessness which marked the development of the United States. In mining camps, on ranching lands on the frontier; everywhere that men have gone the law and its administration has gone with them. Life and property are throughout Canada as secure as in the oldest and best administered portions of Europe. The provinces have always been able to look after their own peace. For the frontier there is a federal force called the Northwest Mounted Police, which enforces the law where pioneers are scattered along the edge of the wilderness. This force has the respect, admiration, and gratitude of all honest settlers, but it is the terror of cattle and horse-stealers, and frontier felons of all sort. Its efficiency is known throughout the Western portion of the United States, where law-breakers have sought to extend their operations into Canada, and have met with disaster at the hands of the police.

Order in a Mining Camp.

An example of their efficiency was shown on the discovery of gold in the Yukon, when twenty thousand adventurers from all parts of the world poured

into Dawson City within a year. Instead of the disorder which was characteristic of the mining camps of the United States, there was absolute quiet in Dawson City. The miner's life and the miner's gold were secure from the designs of law-breakers.

Courts of Justice. Canada has an excellent judicial system. The judges are appointed by the federal government and paid by the various provincial governments. They are appointed practically for life, and provision is made for old age pensions. Therefore they are practically independent of all outside influences. Throughout Canada, with the exception of Quebec, the common law system prevails. In Quebec there is the civil law which was established during the French regime and preserved with the French language, to the inhabitants, in the articles of surrender.

Protection of the Weak The rights of the minority have always been respected by the majority in Canada. Though conquered by the English, the French lost none of their ancient rights. This treatment was so highly appreciated that only a few years after the surrender of Quebec, the French joined with the English inhabitants in repelling an invasion from the United States. The French are credited with having at this time saved the Dominion of Canada to the British Crown.

To-day the French language is spoken in the Canadian Parliament as freely as is the English, and all publications of the federal government are printed in both languages.

Religious Liberty. There is no state church in Canada. Any sect or the followers of any creed are free to worship as they please and to voluntarily support any religious system they desire. If they choose, they need support none at all. Nearly all the French are Roman Catholics, and that Church has more communicants than any other denomi-

nation. Next in order of numbers come the Methodists, then Presbyterians, Church of England and Baptists.

Taxation is Light.

There are no federal taxes or restraints placed upon business. For joint stock companies letters patent are obtained without difficulty from both the federal and the provincial governments. The success or failure of a business enterprise, whether by an individual or a joint stock company, depends entirely upon the energy and capacity of the men at its head. The Government neither assist nor hinder.

Direct taxation in Canada is low. There is none imposed by the federal or by any of the provincial governments. The federal government derives most of its revenue from the custom houses at the ports of entry, through a revenue tariff laid upon imports from foreign countries. The provincial governments find means to carry on their administration from an annual subsidy paid them by the federal government, and from the administration of their Crown lands. They have other sources of revenue as well.

The only direct taxation in Canada is that imposed by municipal governments for such local works as the building and maintenance of roads and bridges, for the running of public schools and for similar local services.

Canada has a splendid banking system and admirable banking institutions. It is well provided with insurance companies.

In all departments of social, business, and political activity Canada has the modern machinery of civilization.

No Conscription.

Finally, there is no compulsory military service. Canada has no standing army. It has a volunteer militia system by which such of the inhabitants as choose can join organizations and receive a certain amount of military instruction every year. These volun-

teer militia organizations are of a social character and are very popular among the young men in many parts of the country. The Government maintains a small permanent force to provide instruction for the militia officers. Training is given in the infantry, artillery, cavalry and engineering branches of the service. There is no pressure on any one to join the militia. However, any arm of the service is open to all who desire to join.

III.

THE CANADIAN CLIMATE.

Canada has a wonderful variety of climates. As its southern extremity is as near as Rome to the equator, as its most northerly settlement is on the edge of the Arctic circle, as the Atlantic and the Pacific coasts are separated by about three thousand miles of land and land-locked water, it is evident Canada must have as great a range of atmospheric conditions as the whole of Europe.

Travellers' tales, exaggerations and misconception have created a popular idea that Canada has but one climate and that unbearably cold for the greater part of the year. The majority of Europeans believe that Canadians spend the greater portion of their lives clothed in skins and furs.

This idea has persisted and increased since the trading companies, four hundred years ago, began ransacking the Canadian forests and streams for the pelts of beaver, otter, mink, fox, bear and musk ox. A French monarch once signed the Dominion away as "a few square miles of snow." More recently an English statesman referred to "those huge ice-bound deserts of North America."

A Place for Men.

However, men live in the most northerly portion of Canada. In the more southerly portions they live all the year around not only without hardship, but in the greatest comfort. Furs are worn as a luxury rather

than as a necessity. With many Canadians winter is the favorite time of the year, as it is a season of more leisure and furnishes opportunities for sport which are largely taken advantage of.

That Canada is a country well fitted for Europeans to live in is shown by the fact that thousands have gone to it from every one of the Continental countries, as well as the British isles, and have prospered in health and material conditions. One of these is Hon. David Wark, a native of Ireland, Senator of Canada, said to be the oldest law-maker in the world. He sat in the Senate throughout the session of 1904, when he was in his hundred and first year, and announced his intention of taking part in the deliberations of Parliament in the 1905 session.

The number of centenarians, especially among the Canadians of French descent, whose ancestors for ten generations have lived and died in Canada, attests th. suitability of the climate to the European races; as does also the fact that the weight of children at birth and the size at twenty-one years are far above the average of Europeans.

In the older settled portions of Canada the undoubted experience is, that the climate has been modified by the decrease of the forest area and the draining of swamp lands. Malte Brun says "the same changes, as to climate, are taking place in Canada which were observed in Europe when the dark masses of the Hercynian forest were felled, and its morasses drained by the laborious arms of the Germans, and the climate becoming more mild, has undergone a change of 8 deg. to 10 deg. on the average, since the efforts of European industry were first applied to the cultivation of the country."

Latitude is not the only thing which affects the temperature of a place. Still, it has a good deal to do with it. It is, therefore, interesting to note that Windsor, Ontario, is only twenty-six miles further north than

Rome. Niagara Falls and Hamilton are further south than Nice. Toronto is but a few miles further north than Marseilles. Ottawa and Montreal are in the same latitude as Venice. Sydney and Geneva are about the same distance north. Quebec is a good many miles further south than Paris. Winnipeg and Cherbourg are about the same distance north of the equator. All the Canadian cities mentioned are further south than Liege, Brussels, London, Hamburg, Berlin, or Copenhagen. The portion of Canada as far north as Stockholm, Christiana, and St. Petersburg has no settlers within a hundred miles. Yet some day that northern portion of Canada will be as thickly peopled as is that part of Europe.

A large portion of Canada is in latitudes which in Europe have proved the most favorable to the health of man. The mean temperature of the regions watered by the Moose and Abbitibi Rivers corresponds with the north of Europe, being 65 deg. F. The regions drained by the northern parts of the Ottawa and by the Saguenay and the northern parts of Nova Scotia correspond with the south coast of England, the middle of Germany, northern France, and the south of Russia, being 60 deg. F., while 65 deg. F. represents the summer temperature of the regions bordering upon the upper St. Lawrence Lakes, London, Toronto, Kingston, Montreal, the St. Lawrence to Quebec, and eastward to Fredericton, the capital of the province of New Brunswick.

Altitude more than latitude makes climate, and in this respect Canada occupies a position superior to most regions. According to Humboldt, Europe has a mean elevation of 671 feet, South America of 1,132, Asia of 1,151, and North America of 748 feet. The Canadian part of North America is placed at 300 feet.

Influence of Ocean Currents.

Marine currents are favorable to Canada. Along the Atlantic coast, the Gulf Stream exerts its benign influences to such an extent that on

Sable Island there are troops of wild ponies, the progenitors of which, some centuries ago, were shipwrecked and cast upon the island, and there successive generations, without shelter of any kind, have lived and multiplied. In Halifax, in the depth of winter, a dozen hours of south wind will lick up the snow-banks, and carry them away.

Along the Canadian littoral of the Pacific Ocean the Japanese current produces the same effect on the climate as the Gulf stream does in England. It makes snow a rarity. Vancouver Island is like the south of England, except that it has a greater summer heat with less humidity. In the vicinity of Victoria the highest temperature in the shade in July and August ranges from 80 to 90 deg. F., while the thermometer in winter seldom goes as low as 22 deg. below freezing point. New Westminster, in latitude 49 deg. 13 min., has a mean temperature for the year of 50 degrees. Pelee Island, Ontario, in latitude 41 deg. 50 min., has an annual mean temperature of 49 degrees. As respects the ocean currents, it may be said that they make a difference in the regions affected by them of 10 deg. latitude.

Fresh Water Influences.

The great inland bodies of water greatly modify the severity of the climate. Hudson's Bay is 1,000 miles long by 600 wide, with an area of 444,000 square miles. Its temperature is 65 deg. F. during summer; in winter it is 3 deg. warmer than the waters of Lake Superior. The chain of fresh water lakes, which, almost without a break, extends between latitude 44.45 and latitude 51 north, and from longitude 75 to longitude 120, covers, together with the smaller lakes, an area of 130,000 square miles, and contains nearly one-half of all the fresh water on the surface of the globe. The moderating influences of these large bodies of water, which never freeze over, will be at once recognized.

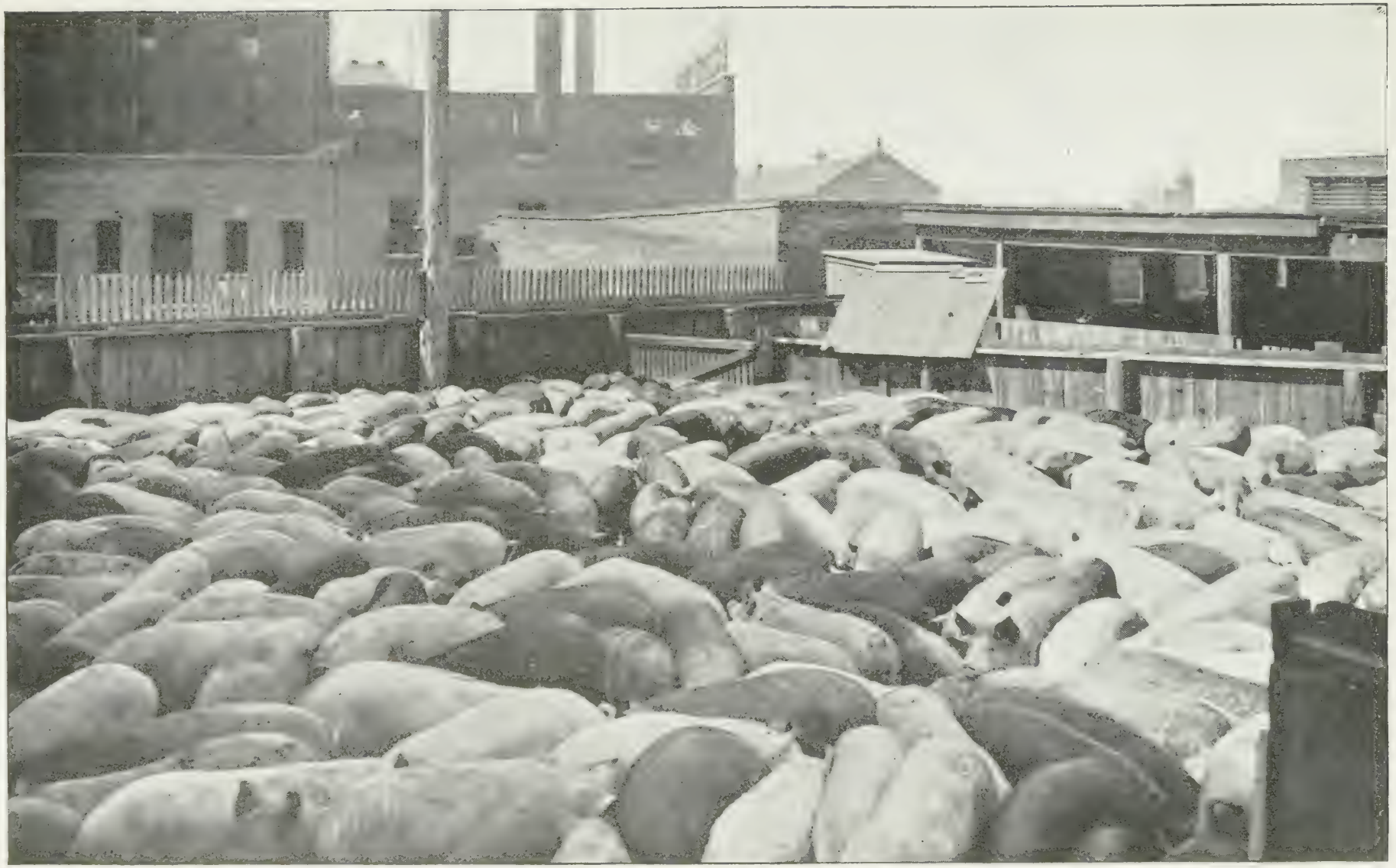
Canada has more sunshine than Europe. It is a

country of bright skies, and when summer comes, with its long, sunny days, the grains ripen quickly. On the western prairie there are, on the average, two hours more of sunlight each day during summer than in England. In England, for example, there is sunshine only for one quarter to a little over one-third of the time; England's highest average is Canada's lowest.

Cattle Raising Favored

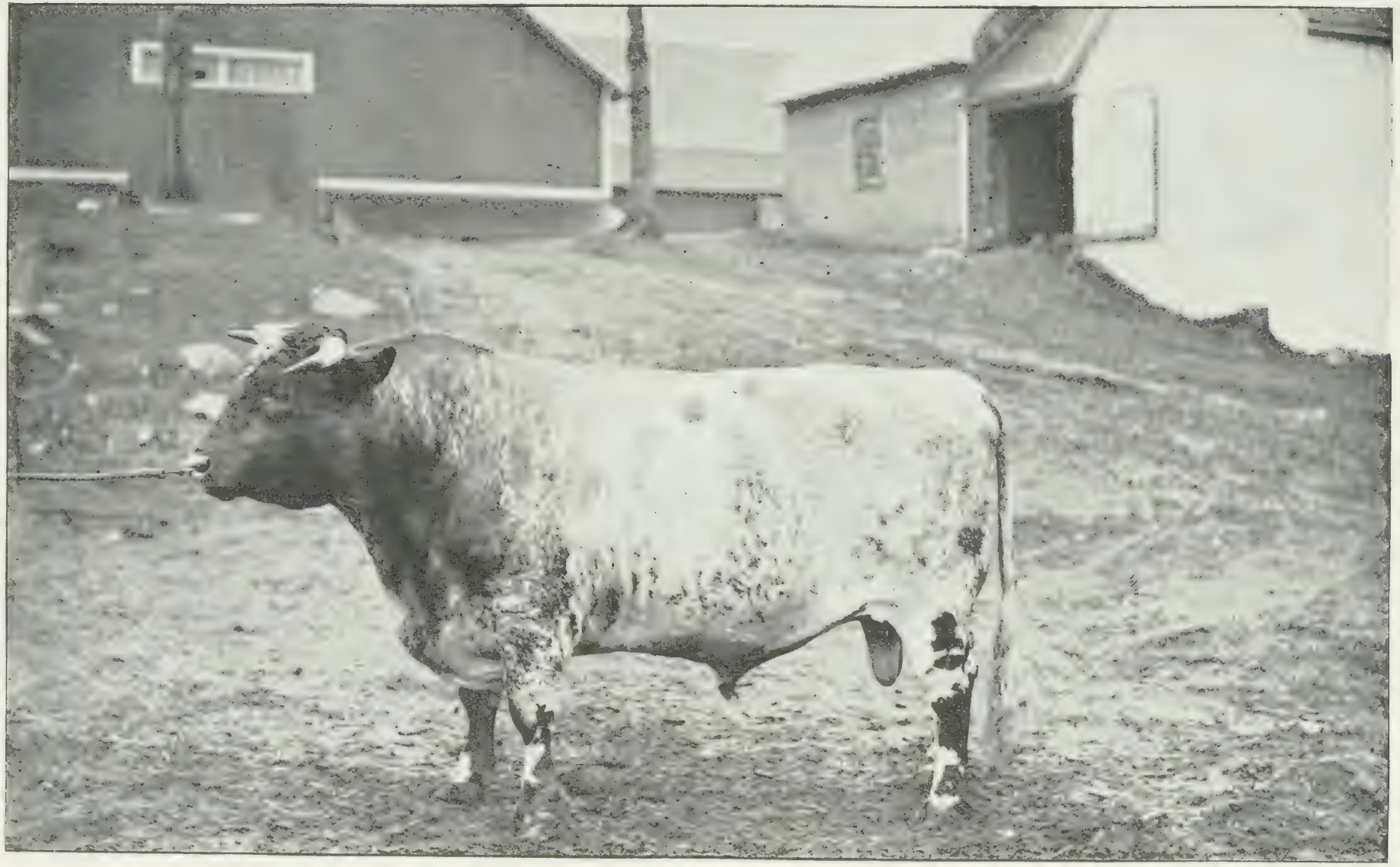
As the Canadian climate is good for men, so it is for domestic animals. Pork, beef, mutton and fowls are largely produced in all the provinces. From several they form large items of export to the European markets. The possibility of living out of doors throughout a Canadian winter is shown by the fact that during the insurrectionary movement in the Canadian Northwest, in March, 1885, men and boys were marched from the Niagara peninsula, and from all the cities between London and Halifax, without any special selection. Five thousand troops, with another thousand employees of various kinds, travelled in open box-cars over the Canadian Pacific Railway, marched across the "gaps" in the then uncompleted railway, trudged through snow and slush by forced marches northwards from three points of the railway hundreds of miles distance from each other. They slept in tents without taking any extra precautions as regards health. Yet of the six thousand, during months exposed and going as far north as the 53rd parallel, not one man died from any disease traceable to the climate. There was complete immunity from disease.

In the past countless herds of buffalo roamed over the great Canadian prairies, and through the foothills of the Rocky Mountains. They wintered in the open as the herds of beef animals do to-day. Stock pastured upon the prairie in Alberta is found in the spring to be fat and in good condition. The census of 1901 showed that the Northwest Territories contained over a million head of



PEN OF HOGS—THE WM. DAVIES COY. LTD., TORONTO.

RAIL OF DRESSED HOGS—THE WM. DAVIES CO'Y., TORONTO.



SHORTHORN BULL: MARQUIS OF ZENDA. HON. W. C. EDWARDS, ROCKLAND, ONTARIO.

SHORTHORN CATTLE, COMPTON COUNTY, QUEBEC.

AYRSHIRE COWS, REFORD FARM, STE. ANNE DE BELLEVUE, QUEBEC.

SHEEP AT PASTURE, NEAR BROME LAKE, P. QUEBEC (FARM OF HON. SYDNEY FISHER, KNOWLTON).

live stock valued at $28,000,000. The greater portion of this was never beneath a roof.

Cereals and Fruits.

The further north cereals and fruit can be ripened, the better their quality. Canada's soil and climate has been credited with producing the finest wheat, apples, peaches, and pears in the world. The climate is especially adapted for producing the strongest wheat, United States millers, recognizing the superiority of "Manitoba Hard," are beginning to purchase it in large quantities to mix with their own wheat and so bring their flour up to the standard established by Canadian millers.

Weather Under Observation.

Misconceptions with regard to the climate of Canada have cost the country many timid settlers, some tourists and possibly a few investors. This is the only way the Canadian climate has ever injured a Canadian. The errors have had a good deal to do with the establishment of a scientific corps for the study of atmospheric conditions. The study of the science of climate has been stimulated by the determination of Canada to present facts in place of assertions and wanton aspersions. The Meteorological Service of Canada has 339 stations, at which weather observations are taken and abstracts forwarded to the central office at Toronto. These stations are classified as chief stations, and stations of the first, second and third classes, according to the number and character of the observations taken. All Canadian reports are forwarded to the United States Weather Bureau at Washington, which office in return supplies reports from United States stations. There are in the Dominion some 73 stations at which storm signals are displayed, 31 being on the Great Lakes of Ontario, 40 on the Gulf of St. Lawrence and the Atlantic coast, and two on the Pacific coast. Daily, monthly, and yearly reports are published.

IV.

THE CAUCASIAN POPULATION.

The last census of Canada, taken March 31, 1901, showed the number of inhabitants to be 5,371,315. The number is small compared with the opportunities the country offers to the man who wishes to establish a home and acquire a competence. The stream of immigration is now flowing strongly. For many years it was a mere trickle compared with the flood rushing in to develop the United States. Many causes combined to this result.

Settlement began on the eastern coast and pushed up the waterways falling into the Atlantic.

The various settlements at Acadie, New England, Virginia and on the St. Lawrence in the first decade of the seventeenth century were effected with difficulty. Population was first attracted to this continent from Europe, and scattered settlements were formed from the Gulf of St. Lawrence to the Gulf of Mexico. These immigrants peopled the regions continguous to the coast, and pushed their way slowly into the hinterland, in an ever-widening circumference. While this movement was in progress along the Atlantic coast, the descendants of a few hardy Norman emigrants, who had secured a foot-hold at the confluence of the Saguenay and St. Lawrence rivers, and there founded their first establishments on Canadian soil, pushed vigorously forward, exploring and settling the St. Lawrence and its tributary rivers and streams.

The First Growth. Two centres of population were thus formed on the North American continent. Sometimes an advantage secured by one centre attracted wanderers from the other. Thus the withdrawal of the United States —the second great country in area on this continent— from the British Empire, caused an extensive movement

of population from the Atlantic sea-board, between the St. Croix and the Delaware rivers, to British territory, tens of thousands going from New York and other ports to Nova Scotia and New Brunswick by water, and thousands forcing their way through forests to the then unoccupied regions north of Lakes Erie and Ontario.

The cession of Acadie to England by the French led to the dispersion of the French Acadians and their settlements in little communities from Maine to Louisiana. Some of the more northerly communities in after years attracted the French population of what is now the Province of Quebec to the Eastern or New England States, where by the slow accretion of years there is at present a considerable number, chiefly employed in factories.

Canadian West Locked.

It is difficult to tell which of these two centres in the course of years has the better succeeded in winning population from the other and from European countries. Up to 1840 the Canadian centre had obtained an absolutely larger number of European immigrants. Then came the rush to the Western States, a region which began to attract attention of settlers in 1830. This fact, taken in connection with the movement of population from Ireland owing to famine, gave a greater impetus to the United States centre, and it rapidly passed the Canadian in the race for population. The attraction of new lands of reputed fertility were very great, and many thousands of Canadians passed over to the newly opened regions, the movement continuing for years. Canada's Northwest Territory, the counterpart, and in many respects the superior of the Western States, was locked up and was destined to remain locked up for thirty years, the Hudson Bay Company holding the key.

The territorial claims of this trading company were purchased by the Canadian Government in 1870, and Canada, to recover her lost headway, began at once to develop the new region, prosecuting the survey of lands

70,000,000 acres completely surveyed, to which since that date there have been added ten million acres, as demands arose. So that there are now about one hundred million acres set out for settlement, giving 625,000 farms of 160 acres each.

Mingling at the Border.

In the meantime, for a whole generation, population had spread throughout the western United States towards the Canadian boundary line. When the restraints to settlement were removed by the purchase of the territory, then began a movement of population from the United States to the Canadian Northwest, which, especially in recent years, has equalled in volume any of the many streams that in the past, moving now in one direction and now in another, mingled the people on the border land of the United States and Canada, to the great advantage of both.

A Century's Growth.

In 1800 the population of what is now known as Canada was under 400,000. According to the last census, taken in 1901, it was 5,371,315, showing the gain in the century to have been 5,000,000 on an original population of 400,000. The proportion of the sexes calculated from the returns of the census of 1901 is 5,123 males to 4,877 females in each 10,000 of the population.

According to the same census, 87.00 per cent. of the inhabitants of Canada are native-born and 94.53 per cent. British-born, which, of course, includes the Canadian-born.

The following table shows the nativity of the chief groups of aliens:

Born in	No.
Canada	4,671,815
England	201,285
Ireland	101,629
Scotland	83,631
Newfoundland	12,432

Born in	No.
Other British Possessions	6,906
United States	127,899
Germany	27,300
Russia and Poland	31,231
China	17,043
Scandinavia	12,331
France	7,944
Italy, Spain, and Portugal	7,124
Austria-Hungary	28,407
Belgium	2,208
Holland	385

Two and one-fourth millions of the population of Canada live in Ontario; one and three-fourths millions in Quebec; nearly a million in the Maritime Provinces (New Brunswick, Nova Scotia and Prince Edward Island); half a million in Manitoba and the Territories; and nearly two hundred thousand in British Columbia. Canada has more than one-half the white population of all British colonies.

The main racial divisions in Canada are into French and English-speaking races. Of the former, in 1901 there were found to be within Canada 1,649,371, 80 per cent. of whom were massed within the bounds of the Province of Quebec. The French form thirty per cent. of the whole population of Canada.

The proportion of the French-speaking race is increasing in Quebec. It was 78.8 per cent. in the census of 1881, and 79.7 per cent. in that of 1891, and 80.18 in 1901—one and a third per cent. in twenty years.

The Religious Census.

The religions of the people of Canada: Protestants, 2,937,696; Roman Catholics, 2,229,600; Jews, 16,401; without creed and creed not given, 187,618.

In Canada all religious denominations are on an equality, and complete religious liberty prevails. Canadians of French descent are almost all members of the

Roman Catholic Church, which has, on this account, more communicants than any other religious denomination in Canada. Among Canadians not of French descent, the Methodists are the strongest in numbers; the Presbyterians come next, the Roman Catholics third, and the Church of England fourth, and the Baptists fifth.

In Manitoba and the Territories, owing to the large number of Scotch settlers, the Presbyterians are most numerous, constituting 21 per cent. of the population, the Methodists ranking next with nearly 17 per cent., and the Church of England third with 16 per cent.; 83 per cent. of the population in the West is Protestant.

The largest Protestant denominations of Canada were: Methodists, 916,886; Presbyterians, 842,442; Church of England, 680,620; Baptists, 316,477.

The Age and Sex.

Classifying the population according to ages and denominating the classes as follows: Infants, persons under one year old; children, from one to five years old; boys and girls, from 5 to 15 years; youths and maidens, from 15 to 20 years; young men and women, from 20 to 30 years; middle-aged men and women, from 30 to 50 years, and old men and women, 50 years and upwards, the following results are obtained:—

	1901	
	Males	Females
Infants	66,464	65,116
Children	257,832	253,573
Boys and Girls	606,808	589,430
Youths and Maidens	280,275	272,228
Young Men and Women	473,315	458,874
Middle-aged Men and Women	638,348	584,989
Old Men and Women	398,898	376,088
Not given	29,766	19,311

Of the aged 39,539 were 80 years old and upwards, and of these 3,871 were 90 years old and upwards. These latter were:—Males, 1,779; females, 2,092.

By the census of 1901 in each group of 10,000 there were 6,175 single, 3,412 married and 413 widowed. Of the single, 3,256 were males, and 2,919 females. The males were divided into:—1,537 under 21 years of age, 1,719 over 21 years; bachelors over 20 years, 1,000. Of the 2,919 females, 1,201 were under 15 years of age; 1,455 were of the reproductive age (15 to 45), and 263 were over 45 years.

The housing of the people of Canada required 1,028,892 houses, giving an average of 5.22 persons to the home.

As the average sized family in Canada was 5.02, practically every family in Canada had a home.

Immigration Growth.

During recent years there has been a large addition to the population through immigration. Thus to the end of December, 1900, in the twelve months of the year, 29,197 persons arrived at our ocean ports and declared their intention to settle. Of these, 14,730 were bound to the Northwest, and of these 6,593 were Galicians. In addition to the 29,197 persons from over the sea, there were reported at Winnipeg 11,192 declared settlers from the United States during the twelve months, while west of Winnipeg, along the frontier of Manitoba and the Northwest Territories, 4,308 more arrived from the United States. These figures are exclusive of arrivals in the Yukon Territory.

In 1902, the total arrivals were 67,379 persons, of whom 13,095 were English, 2,853 Scotch, and 1,311 Irish. 26,388 persons came from the United States.

In 1903, the arrivals numbered 128,364 persons, of whom 41,792 were from the British Isles and 49,473 from the United States.

In 1904, the total arrivals numbered 130,331 persons, of whom 50,374 were from the British Isles, and 45,229 from the United States.

The foreign-born population of Canada numbered, according to the last census, 278,449 persons.

WHERE THE IMMIGRANTS COME FROM.

Country of Origin.	1903	1904
United States	49,473	45,229
England and Wales	32,510	36,694
Scotland	7,046	10,552
Ireland	2,236	3,128
Galicia	10,141	7,729
Russia and Finland	7,277	2,800
Scandinavia	5,448	4,203
Hungary	2,156	1,091
Germany	1,887	2,985
France and Belgium	1,240	2,392
Austria	798	2,201
Other Countries	8,152	11,327
Total	128,364	130,331

V.

THE INDIANS.

There are still in Canada representatives of many of the tribes of the aborigines. But the bands of fierce copper-colored warriors the French found roaming the Canadian wilderness have disappeared. The original lords of the forest have been completely submerged beneath the wave of civilization the white man has rolled over the country. The Indians who made wars, treaties and alliances with the first white residents of Canada, are now the wards of the nation. The French found the Indians supreme in Canada. The greater portion of what is now the Dominion was then occupied by tribes of the Algonquin. To the south of the Lakes and the St. Lawrence River were the other great aboriginal family of this part of the world, the Iroquois, or Five Nations.

Two Native Families.

It is in these two great divisions of Indians that anthropologists seek for the roots of the aboriginal people of the North American Continent. The two original groups are the Malay-Polynesian and the Turanian. These groups are both represented in Canada, the Algonquins belonging to the former, the Iroquois, the Tinnehs, and Eskimos to the latter. Through the Algonquins, Canada's aborigines are connected with the people inhabiting the vast area from Malacca to New Zealand, and from Madagascar to the Sandwich and Easter Islands. Through the Iroquois they are connected with the Finnic, Turkic and Mongolic classes of Asian and European peoples.

The two are distinct. The Algonquin languages differ radically from those of the Iroquois both in grammatical and in verbal forms. The flatter face, inferior stature and more delicately formed extremities of the Algonquin are in marked contrast with the muscular development of the Iroquois. The Iroquois is preeminently a landsman, a warrior, and a lover of manly sports, while the Algonquin loves the water, is less aggressive, and more idle. Taciturnity, with all that it implies, such as the absence of humor, is characteristic of the Algonquin, but not of the Iroquois. The Iroquois was originally a sun worshipper, but such the Algonquin never was. In fact, these two families have little in common beyond the accident of condition and minor features of life resulting from mutual intercourse. The Algonquin and the Iroquois, who have jointly contributed to the portraiture of the ideal red man, are the representatives of two families as distinct as any that can be found outside the Aryan and Semitic areas of the old world.

The Indians of Canada, springing from two distinct ancestries, may be divided into four families: (a) the Innuits or Eskimo, (b) the Tinnehs, (c) the Algonquin and (d) the Huron-Iroquois.

The Natives of the Arctic.

The Innuits — meaning "the men," their own name for themselves, "Eskimo," (raw meat eaters), being the term of derision conferred on them by the Algonquins—are the oldest of the aboriginal races in Canada. From a consideration of the many points of agreement between the cave men of France and Great Britain—the sewing needles, the necklaces and armlets of cut teeth, the daggers made from antlers, the talent for artistic sketching of men and beasts, and scenes in which men and beast figure, many palaeontologists are inclined to agree with Professor Boyd Dawkins that the Eskimos of to-day are the survivors of the race of great antiquity that made their homes in the pleistocene caves of Western Europe.

The Innuits inhabit the littoral of the northern fringe of Canada from Labrador and Ungava Bay to the boundary line between the Yukon Territory and Alaska. From the latter region along the whole coast line to Ungava Bay they all speak one language, are characterized by the same intelligence and the same capacity to find subsistence in a region in which white men, with all the resources of civilization at their back, have experienced great difficulty in maintaining themselves in health and vigor for even a short time. They have much artistic capacity, and Arctic navigators have described with wonder the ease with which they have taken pencil and traced the shore lines. They are bold and daring on the water, attacking alone in their frail kayaks on the open sea the largest sea animals.

The Tinnehs or Dene Dindjies, inhabit the valley of the Athabasca River, the Peace River district, the regions north of Great Bear Lake, to the south of the Innuits' ocean-washed belt of land, the mountains of the Mackenzie River, the slopes of the Rocky Mountains and almost the whole of the region west of the Rockies, including Vancouver and Queen Charlotte Islands, from

which places they have poured in adventurous bands and taken possession of the country south of the Innuit territory.

The Algonquin Group.

Immediately south of these are the Algonquins, who, originating in the East, where they were neighbors of the Innuits, pushed their way from the interior of Labrador and throughout the region between the Atlantic sea coast and Lake Superior to the southern regions of the Canadian Northwest, where, as Saulteux, Prairie Crees, Wood Crees, Blackfoot, Bloods, and Piegans they have taken root and shown themselves in every way as vigorous as the more easterly stock from which they originally sprung. The Cree language is the typical language of this, the most widely distributed Indian race; including, in addition to the westerly tribes already enumerated, the Micmacs, Melicites, and Abenakis, of the Eastern Maritime region, the Naskapees and Montagnais of Labrador and Eastern Quebec, the Mississaugas, the Ojibwas and the numerous tribes of Western Quebec and Ontario which the French secured as allies in the half-century of conflict. These tribes were great hunters, roamed over a vast extent of territory, and as warriors proved their capacity in many a border war during the long period when French and English strove with each other for supremacy in the waters of Acadia, in the pine forests of Maine and Massachusetts, along the southern shores of the great Laurentian Lakes and by the side of the Mississippi River from source to mouth.

The Five Nations.

The Iroquois, the second great family, resembled the French and the English in their power to organize, to provide wise rules for government in peace or in war. There were five tribes at first, generally designated as the Mohawks, the Oneidas, the Onondagas, the Cayugas and the Senecas. Subsequently the Tuscaroras joined

them and they became known as the Six Nations, or more often as the Iroquois. As such they held the balance of power between the French on the Lakes and the English on the Atlantic sea-board, playing one against the other with skill and securing for themselves the profitable work of middlemen in the fur trade with other tribes. There are scattered bands of the Huron-Iroquois, as the Hurons of Lorette, near Quebec City, those of Caughnawaga, Lake of the Two Mountains, St. Regis, and the Iroquois found in several places on the peninsula between Lakes St. Clair and Erie. These are east of Lake Superior. West are to be found the Assiniboines and the Sioux, belonging to the Dakotahs, and thus allied to the Iroquois as sprung from a common Turanian or Northern Asiatic origin.

First Indian Census.

In 1871, in the first census of the Dominion, the subject of the Indian population received careful attention. There were found to be 36 tribes, divided into Eskimo, 1, Dene-Dinjie, 19; Algonquins, 11; Huron-Iroquois, 5.

As regards numbers there were:

Of the Eskimo race	4,028
" " Dene-Dinjie	42,000
" " Algonquin	46,000
" " Huron-Iroquois	10,330
Total	102,358

As regards mode of living:

Chiefly by fishing	23,000
In camps by prairie hunting	18,000
In villages in settled districts	17,358
By families in the woods	44,000

As regards the general geographical distribution:

West of the Rockies	26,000
East of the Rockies	76,000

As regards political divisions:

Province of Prince Edward Island	323
" " Nova Scotia	1,666
" " New Brunswick	1,403
" " Quebec	6,988
" " Ontario	12,978
" " Manitoba	500
" " British Columbia	23,000
Rupert's Land	33,500
Labrador and the Arctic watershed	22,000

The census returns for 1901 give the number of Indians at 93,454, thus showing a decrease in the thirty years of 6,649.

Number Growing Slowly.

The Report of the Superintendent of Indian Affairs for 1902 gives the total at 107,978, an increase of 5,720 in thirty-one years.

The Indians in the older provinces are increasing in population at such a rate as to be more than an offset to any decrease in the Northwest. During the thirty-one years the Indians of the plains have been brought within the sphere of civilization, and have suffered. The introduction of railways, the destruction of the larger game like the buffalo, and the restriction of the area of production of wild animals by settlement and by ranching grounds have been more powerful forces of depletion than the reproductive force of the race for growth. The change from the decrease of 6,649 in 1901 to the increase of 5,754 in 1902 shows that the decrease in the Northwest has been stayed, and that the system which has resulted so well in the older provinces is about to produce equally beneficial results under the new conditions of the Northwest Territories. In 1904 the decrease in the number of Indians in the Territories was only 88. Of the total, 22,084 are outside of treaty limits and are nomadic.

Many Grades of Advancement.

The Indians of Canada are in various stages of development. A few are polygamous, while some have adopted the civilization of the white population to such an extent as scarcely to be distinguished from them. Some would not know what a vote for a member of parliament means; others possess the electoral franchise and prize it highly. Some tribes are increasing in numbers and others are decreasing.

The Indians on reservations in 1904 numbered 85,894. They had 46,101 acres under cultivation, owned 37,827 head of cattle and 32,635 horses. The produce of their farms for the year was valued at $1,108,635. At fishing they earned $518,152 and at hunting $614,156. In wages at farm, factory and other manual work they earned $1,479,130, and in other industries they earned $612,810 during the year.

Government Wards.

The Government of Canada have taken charge of the Indians. Like an army they have been, and many of them are still fed and clothed. More of them are partially self-supporting and some of them are entirely so. In both the east and the west many Indians have developed skill in the arts of husbandry and are independent citizens. With their consent, their lands, in many instances, have been sold until an Indian Fund has accumulated amounting on 30th June, 1903, to $4,705,130, the expenditure from which, charged principally to interest, was $296,217. The expenditure from parliamentary appropriations was $1,077,815. This amount was divided among the Indians of the several provinces as follows:—Ontario and Quebec, $88,364; Nova Scotia, $7,620; New Brunswick, $16,891; Prince Edward Island, $1,574; Manitoba and the Northwest, $818,576; and British Columbia, $138,216. The sum of $44,214 was divided between Ontario, Quebec and the Maritime Provinces for expenditure on schools. This expenditure in the whole Dominion reached the sum of $384,939.

Schools—day, boarding and industrial—have been established for the Indians, and now number 283, with 9,669 pupils on the rolls, and an average attendance of 6,054. The number of pupils in 1885 was 4,000. Of these 283 schools 100 were conducted by the Roman Catholic Church, 87 by Anglicans, 41 by Methodists, 14 by Presbyterians, and 41 were undenominational. In the older provinces many Indian children attend the day schools of the white communities in the vicinity of the reserves.

Education Provided.

The census of religions for 1902 shows that there were 64,735 Indians Roman Catholics, 14,472 Anglicans, 11,106 Methodists, 1,375 Presbyterians, 1,059 Baptists, 692 other Christian creeds, and 12,155 pagans.

VI.

THE CONSTITUTION.

The constitution of Canada is set out in the British North America Act. Under the authority of this document Canada, though a colony, enjoys what has been described as the most free and untrammeled government on the globe. The British North America Act was passed by the Imperial Parliament in 1867 to unite the provinces of Quebec, Ontario, Nova Scotia and New Brunswick and to provide for the eventual admission of other parts of British North America. Prince Edward Island, British Columbia, Manitoba, Alberta and Saskatchewan have since come in.

The executive government and authority is vested in the Sovereign of Great Britain and Ireland, who governs through the person of a Governor-General, appointed by him but paid by Canada.

By the adoption of this plan, the Canadian Constitution has become the very image and reflection of parliamentary government in England. The Governor, like the Sovereign whom he represents, holds himself aloof

from and superior to political parties, and governs through constitutional advisers, who have acquired ascendancy in the Lower Chamber of Parliament or the House of Commons.

A Council, known as the King's Privy Council for Canada, taken only from members of the Dominion Parliament, forms a ministry which must possess the confidence of the majority in the House of Commons. The power of dismissing the ministry lies with the Governor-General.

The command of the Canadian military, both active and reserve, is vested in the King. The organization, training and direction of the force are duties of the Canadian Minister of Militia. He is Chairman of a Militia Council of five, which looks after the details.

The seat of government is at Ottawa.

The Canadian Parliament.

There is one Parliament for Canada, consisting of the King, an Upper House, styled the Senate, and a Lower House, styled the House of Commons.

The Senate consists of eighty-three members, appointed for life by the Governor-in-Council; twenty-four from Ontario, twenty-four from Quebec, ten each from Nova Scotia and New Brunswick, three from British Columbia, four each from Prince Edward Island, Manitoba, Alberta and Saskatchewan. Each Senator must be not less than thirty years of age, a born or naturalized subject, and possessed of property in his own province, real of personal, of the value of $4,000. He must continue to be a resident within the province for which he is appointed.

The House of Commons consists of 214 members, elected for five years (unless the House is sooner dissolved) on the basis of representation by population for the older provinces, the arrangement being that the Province of Quebec shall always have sixty-five members, and the other provinces proportionately to population

ALEXANDRA BRIDGE, OTTAWA, ONTARIO.

according to the census, which is taken every ten years, the last being taken in 1901.

By provinces, under the latest rearrangement, the 214 representatives in the Commons are apportioned as follows:—

86—Ontario, 65—Quebec, 18—Nova Scotia, 13—New Brunswick,	Original provinces of the Confederation.
4—Prince Edward Id., 10—Manitoba, 7—British Columbia, 5—Alberta, 5—Saskatchewan, 1—Yukon.	By terms of Statutes admitting them and amendments thereto.

Bills for appropriating any part of the public revenue or imposing any tax or impost must originate in the House of Commons, but no such bill can be introduced unless recommended by message from the Governor-General. Other bills may be introduced into either house and become law when they have passed both houses of Parliament and have been signed by the Governor-General.

The privileges and immunities of the Senate and the House of Commons are defined by the Parliament of Canada, but must not exceed those enjoyed by the Imperial House of Commons in 1867. The sittings are annual, but may be oftener.

Naturalization Regulations.

The naturalization laws are as follows: 1. Alien women married to British subjects become, ipso facto, naturalized British subjects. 2. Aliens, after three years' residence, bringing certificates of good character, on taking the oath of residence and allegiance before a judge, commissioner, or magistrate, and causing the same to be registered in a court of record, can have a certificate of naturalization given them, and enjoy all privileges of British subjects.

Voting in elections for representatives sitting in the Commons is by ballot.

In addition to those of age (21 years), citizenship and sex (male), common to all voters in all the provinces, the qualifications of electors for representatives of the Dominion House of Commons are those which are adopted by the Legislatures of the several provinces for provincial elections. In the provinces of Ontario, Manitoba, British Columbia, and the Northwest, the qualification is practically residential manhood suffrage, with length of residence varying from six to twelve months—the shorter term being that of British Columbia, and the longer that of Manitoba and the Northwest.

In the eastern provinces a more elaborate system is employed, based upon ownership of real property, position as teachers or clergymen, personal property, income, and residence, the length of the latter being one month in Quebec, and twelve months in Nova Scotia, Prince Edward Island, and New Brunswick.

The Federal Jurisdiction.

By the Act of Union the Dominion Government has control of all matters which by that Act are not specially delegated to the provinces. It has power to make laws for the peace and good government of the whole Dominion, as also to regulate:

1. Public debt and property.
2. Trade and commerce.
3. Indirect taxation.
4. Borrowing on the public credit.
5. The postal service.
6. The census and statistics.
7. Militia and defence.
8. Lighthouse and coast service.
9. Navigation and shipping.
10. Quarantine.
11. Fisheries.
12. Currency and banking.

13. Weights and measures.
14. Bankruptcy and insolvency.
15. Naturalization.
16. Marriage and divorce.
17. Penitentiaries.
18. Criminal law, including procedure in criminal cases.

Administration of Government.

The business of the country is transacted by the members of the Cabinet, each of whom, as a rule, presides over a department.

These departments are as follows:—

1. The Governor-General's office.

2. The Privy Council office, with charge of state papers and records of council.

3. The Department of the Minister of Justice and Attorney-General, including the management of penitentiaries.

4. The Department of Railways and Canals.

5. The Department of the Minister of Public Works, having control of all public works, other than railways and canals.

6. The Department of the Minister of the Interior. including: (a) Dominion Lands; (b) Geological Survey; (c) Indian Affairs and Immigration.

7. The Department of the Secretary of State, including: (a) official correspondence with the Governor-General's office and with the Lieutenant-Governors of the Provinces; (b) the printing and publishing of the Official Gazette; (c) the registration of all public legal documents; (d) the Government stationery and King's Printer's office.

8. The Department of the Minister of Marine and Fisheries, including: construction and maintenance of lighthouses; river police; revenue coast-guard; steamboat inspection; protection of fisheries and fish culture.

9. The Department of the Minister of Militia and Defence, including: militia, fortifications and military schools.

10. The Department of the Minister of Finance, including: Treasury board, government saving's banks, and Audit office.

11. The Department of the Minister of Customs.

12. The Department of the Minister of Inland Revenue, including: collection of the excise; canal and timber slide tolls; ferry dues and the carrying out of the Acts relating to the inspection of food, gas, weights and measures.

13. The Department of the Postmaster-General, including: Post office savings' banks and the Labour Bureau.

14. The Department of the Minister of Agriculture, including: the Patent office; census and statistical office; copyright, trade marks, timber marks and industrial designs; health of animals; quarantine and experimental farms and dairy interests.

15. The Department of the Minister of Trade and Commerce.

In addition to these there is a Department of Mounted Police, administered by the President of the Privy Council.

For the purpose of communicating directly with the Imperial Government, the Dominion has a resident representative in London called the High Commissioner for Canada.

The Provincial Constitutions.

The Government of Canada appoints the Lieutenant-Governors, of whom there is one for each province, whose salary is paid by the Dominion Parliament.

Each province has its own elective assembly and administration with full power to regulate its own local affairs as set forth in the Confederation Act; to dispose

of its own revenues and enact such laws as it may deem best for its own internal welfare, provided only such laws do not interfere with, and are not adverse to, the legislation of the Federal Parliament.

The Dominion Government assumed the debts existing at the time of the Union, agreeing at the same time to pay the provinces an annual subsidy, which is a grant equal to eighty cents a head of the population of the four provinces originally forming the Dominion, as ascertained by the census of 1861, except in the case of New Brunswick and Nova Scotia, where it was arranged that the subsidy should increase each decennial census till the population in each case reached 400,000.

Besides this subsidy there is given to each province an annual allowance for Government and also an annual allowance of interest on the amount of debt allowed, where the province has not reached the authorized debt.

The provinces retained possession of the lands belonging to them before Confederation. Manitoba, having no public lands at the time of its creation into a province, has since received from the Dominion Government a gift of swamp lands.

The provinces appoint all the officers required for the administration of justice, with the single exception of the judges.

Authority of the Provinces.

They regulate:—1st, Education; 2nd, Asylums, hospitals, charities and eleemosynary institutions; 3rd, Common gaols, prisons and reformatories; 4th, Municipal institutions; 5th, Shop, tavern and other licenses; 6th, Local works; 7th, Solemnization of marriage; 8th, Property and civil rights; 9th, Administration of justice, so far as the constitution, maintenance and organization of provincial courts of both civil and criminal jurisdiction and the appointment of magistrates or justices of the peace, are concerned.

Emigration and immigration are subjects of both fed-

eral and provincial legislation, but provincial laws on the subject must not conflict with federal enactments.

The general principles of the Canadian Constitution are: representative government by ministers responsible to the people; a Federal government having charge of the general public good; and Provincial governments attending to local and provincial interests.

The provinces have not any power to organize and maintain a provincial military force, being in this respect unlike the States in the Union to the south; nor have they final legislation, the Dominion Government possessing, under the constitution, the power of veto.

Municipal Organization.

Excepting in Prince Edward Island, municipal institutions have been adopted in all the provinces of the Dominion, the germ of which is in the municipality. Several of these form a township, and these, in turn, are sub-divisions of the county. The council of each county, township, city, town and incorporated village has power to pass by-laws for obtaining such real and personal property as may be required for the use of the corporation; for appointing and paying pound-keepers, fence-viewers, overseers of highways, road-surveyors, road-commissioners, valuators; for granting money in aid of agricultural societies, mechanics' institutes, manufacturing establishments or road companies; for regulating driving on roads and bridges; egress from buildings, and making drains; for inflicting fines; for planting ornamental trees and prohibiting the sale of intoxicating liquor under the Temperance Acts passed by the Legislature.

In the completed form, as adopted by Ontario, Manitoba, British Columbia and other provinces, the whole municipal organization comprises (a) the townships, being rural districts of an area of eight or ten square miles; (b) villages with a population over 750; (c) towns with a population of over 2,000. Such of these as are

comprised within a large district called a county constitute (d) the county municipality; (e) cities are established from the growth of towns when their population exceeds 15,000.

Taken in the large, it may be said that Canada is pre-eminently the land of self-government. The people have been trained for years in municipal government, and by it keep control of expenditure for municipal purposes as through the Provincial Legislature and the Federal Parliament they keep control of expenditures for provincial and general purposes.

VII.

THE DEBT OF CANADA.

On July first, nineteen hundred and four, the debt of Canada was:—

Gross debt	$364,962,512
Assets	104,094,794
Net debt	$260,867,718

The assets consist of amounts invested as sinking funds to meet borrowings; debentures, etc. The sinking fund, (which bears interest) amounts to about 43 per cent. of the total assets.

The public debt was created at the time of the Union (1867.)

(1) by the assumption of the debts of the several members of Federal Union amounting with revisions to	$109,430,148
Since that time there has been spent on capital account:—	
(2) For Canals	$ 66,694,740
(3) For Railways	128,534,490
(4) For Northwest Territories	9,946,952
(5) For other Pub. Wks. & buildings	17,069,812
	$331,676,142

Thus, over 71 million dollars beyond the amount of the net public debt have been expended by the people of Canada for public purposes.

Interest Is Low.

The interest paid on the public debt averages $2.46 per $100. The improvement in the credit of the country is measured by the decrease in the interest paid as compared with 1868, when the average interest was $4.51 per $100.

Besides the amounts expended on railways as above, the Government of Canada have for some years adopted the policy of giving bonuses to aid in the construction of railways, chiefly branches or feeders of the main lines. The amount thus granted is $52,031,000. This sum has been paid out of current receipts.

Analysis of the public debt contracted before Confederation shows that of the total amount assumed by the Federal Government ($109,430,148) the sum of $63,635,092 was expended on public works; $52,944,175 being for railways and canals.

Thus the public debt has been created in large part by the expenditure required for the extension of the Dominion over all continental British North America, for improving the lines of intercommunication, for safeguarding the coasts and for facilitating the general business of the country.

A Large Asset.

Two other facts may be mentioned in this connection. First, the ungranted and unpledged Crown lands belonging to the Dominion, if valued at $1.00 an acre, would pay the whole public debt. Second, the public buildings, the canals, the public railways, and the public lands, though their cost is included in the public debt, are not considered in the Public Accounts as assets to be placed against the debt.

In addition to the public debt of the General Government there are the debts of the several provinces. These

amount (1902) in gross to the sum of $71,629,540, divided among the provinces:—

	Gross.	Net.
Quebec	$36,075,660	$22,129,875
Nova Scotia	3,766,300	2,355,074
New Brunswick	3,710,633	3,076,141
Manitoba	16,664,647	16,987,190
British Columbia	10,761,891	7,191,099
P. E. Island	650,409	438,477
	$71,629,540	$52,178,056

The Province of Ontario's statement showed a surplus of assets over liabilities on 31st Dec., 1903, of $2,549,164, her liabilities being for railway assistance given and amounting to $4,022,810.

Of the public indebtedness of the Province of Quebec, $12,414,888 represents assistance given to railways within the province, not included in the assets.

Current Revenue and Expenditure.

The current revenues of the Dominion of Canada are obtained: (a) from taxation; (b) from receipts from lands, post office, railways, canals and other sources. In the year ended 30th of June, 1904, the revenue was $70,669,816 and the expenditure $55,612,832.

Taking eight years, 1897-1904, the revenue has been $423,428,640 and the expenditure $366,991,560, the two balancing each other, with $56,437,080 receipts more than expenditure.

The general balance sheet for the year ended June 30th, 1904, shows the following condition:—

RECEIPTS.

1. Consolidated Fund	$ 70,669,816
2. Loans and Dominion Notes	29,433,307
3. Open Accounts	209,608,996
Total	$309,712,119

EXPENDITURES.

Consolidated Fund	$ 55,612,832
Redemption	23,795,566
Open Accounts	230,303,721
Total	$309,712,119

The actual sources of revenue and branches of expenditure comprised under the division called Consolidated Fund are:—

RECEIPTS.

Taxation—		
(a) Customs	$40,702,610	
(b) Internal Rev.	12,958,708	
		$53,661,318
Lands		1,443,022
Public Works and Post Office		11,624,543
Interest on Investments		2,236,255
Various		1,704,678
Total		$70,669,816

EXPENDITURE.

Public Debt, Interest Charges and Sinking Funds	$13,725,947
Subsidies to Provinces	4,402,291
Public Works	4,607,330
Militia and Defence	2,252,030
Collection of Revenues	15,583,521
Other Expenditure	15,031,713
Total	$55,612,832

The amount of revenue obtained from taxation in 1903 was 75.9 per cent. of the whole. During the preceding ten years it averaged 76.5 per cent.

VIII.

EDUCATIONAL SYSTEMS.

In Canada education is under the care of the provincial authorities. At the Union, in 1867, the rights and privileges of denominational and separate schools were

carefully guarded. Though the systems vary somewhat in the different provinces, in general the schools are everywhere free. The instruction provided is good. There are ample facilities for instruction in the lower branches. Among Canadians, born in the country, illiteracy is practically unknown. There are splendid institutions for providing education in the higher branches of learning.

The Provinces of Ontario and British Columbia have a Minister of Education and a general superintendent. In the Province of Quebec education is under the control of the Superintendent of Public Instruction, assisted by a council of 35 members, divided into committees for the management of the Roman Catholic and the Protestant Schools respectively. In Manitoba, New Brunswick and the Northwest the Executive associating with them others not of the Executive, with a superintendent, have control. In Nova Scotia the Executive Council and a superintendent carry on the work. In Prince Edward Island the education is under control of a board and a superintendent, both appointed by the Government.

The educational facilities for the aboriginal inhabitants of Canada are provided by the General Government of Canada, who are the guardians of the Indian tribes.

Statistics of Equipment.

The Educational equipment of Canada consists of 17 universities, 20 colleges, 19 classical schools, 8 ladies' colleges, 23 denominational and private institutions not having degree conferring powers; 350 boarding schools for young ladies. In addition to these there are 19,386 public and other schools, supported partly or wholly by the provinces.

In the universities, colleges, and other higher institutions there are 20,000 students. In the young ladies' boarding schools 16,300, and in the public and other schools 1,100,000.

Taking the population of both sexes between the ages of 5 years and 20 years of age, 66 in every group of 100 are enrolled on the attendance books.

Five of the 17 universities are non-denominational, 3 are under the control of the Church of England, 4 under the Church of Rome, 1 under the Presbyterian Church, 2 under the Methodist Church, and 2 under the Baptist Church.

The Universities. The richest university in Canada is the University of McGill, in Montreal. It owns property to the value of $2,200,000, has an endowment of over $3,000,000, and an income from endowments of $346,000. 1,150 students are in attendance.

The University of Toronto has 1,322 students, an endowment of $1,187,683, owns property to the value of $1,457,339, and has an income of $119,087.

In the Province of Ontario, under the University Federation Act of 1887, an uniform standard of higher education is sought in the union of various denominational universities with the non-denominational University of Toronto.

Methodist, Presbyterian, Roman Catholic, Episcopalian Universities and Colleges and other institutions have thus federated and affiliated with the provincial institution.

The same policy has been pursued in other provinces. In the Province of Quebec the University of Laval, two branches (Roman Catholic) and McGill (non-sectarian) are the centres around which the other institutions rally.

An Example. A statement of the possibilities, in the way of Education, though specially describing McGill University, will give a clear idea of the status of higher education in Canada and of the extent to which the people have endeavored to secure the benefits of university education.

McGill University, Montreal, founded in 1814 by a

wealthy citizen, has been enabled to reach its present high position among the universities of the world by private munificence. With a teaching staff of over 180 professors, lecturers and demonstrators, it affords advanced instruction to about 1,150 students in all branches of higher university work, in Arts, Science—Pure and Applied—Law and Medicine. A Railway Department has been established in connection with the Faculty of Applied Science, and a Dental Department in connection with the Faculty of Medicine. It opens its courses in Arts and Pure Science to women on equal terms with men, and grants degrees of B.A., M.A., B.Sc., M.Sc., D.Sc., D.Lit., B.C.L., D.C.L., M.D. and C.M. The undergraduate course in Arts, Applied Science and Medicine, extends over four years; in Law, over three years. The buildings of the university occupy a beautiful site in the City of Montreal, and its unrivalled laboratories and equipment for research work, particularly in the Departments of Medicine, Biology, Physics, Chemistry, Civil, Mechanical and Electrical Engineering, and Mining and Metallurgy, are attracting students from all parts of the world. It possesses in addition a beautiful Library and Museum, and has recently provided a magnificent residential hall for its women-students, a step which will shortly be followed by the erection of residential halls for men. The university extends its influence to schools throughout Canada, and there are affiliated to it no less than four theological and three other colleges, situated at Quebec, Stanstead and Vancouver.

The Annual Charge.

For general education the several provinces allot a very considerable portion of the public revenue. The General Government spends several hundred thousand dollars annually on the education of the Indian children. The expenditure by the provinces for public schools in 1902 was 10,787,957 dollars, equal to $2.01 per head of the whole population.

Excepting in the Province of British Columbia, the people of the several provinces contribute towards Education by direct taxation. Thus, of the total mentioned above, the Government grants amount to $3,651,036, equal to nearly 34 per cent.

The grants by the several governments are equal to more than 25 per cent. of their total revenue.

To this extent the people and the governments cooperate to provide the children with educational facilities, and this they have done for years.

According to the latest returns there are 23,565 teachers connected with the public schools of Canada, a large proportion of whom are females. In the Province of Ontario, in 1885, 62 per cent. of the teachers of the public schools were females; in 1898, 70 per cent., and in 1901, 74 per cent.

In the cases of Manitoba and the Northwest, where the Federal Government owned the land, Parliament, by one of the first Acts relating to the Northwest after the country had been acquired, set apart two out of every 36 sections of 640 acres each for school purposes.

Religious Division.

In the Provinces of Ontario (partially) and Quebec (wholly), the public schools are divided on religious lines, there being in each public schools called Roman Catholic Separate Schools and Protestant Separate Schools. Parents elect to which they shall send their children to be taught.

In the Province of Ontario, 43,987 pupils are enrolled in the Separate Public Schools and 414,619 in the General Public Schools.

In the Province of Quebec there is some commingling. In the main, however, the proportion is the same as the proportion of Protestants and Catholic in the general population.

In the other provinces the education laws recognize no division on those lines.

IX.

LANDS FOR SETTLEMENT.

In all the Eastern Provinces of Canada the ungranted land is the property of the province. Quebec and Ontario have large tracts which they dispose of to settlers on favorable terms.

The ungranted land in Manitoba and the Northwest Territories belongs to the whole people of Canada, and is administered by the Federal Government.

The following is a concise statement of the essential features of the law governing the disposal of Dominion lands in Manitoba and the Northwest:—

The System of Survey.

The Dominion lands are laid out in quadrilateral townships, each containing thirty-six sections of as nearly one mile square, or 640 acres, as the convergence of meridians permits; the sections are situated and numbered in the following diagram:—

N.

W

31	32	33	34	35	36
30	29	28	27	26	25
19	20	21	22	23	24
18	17	16	15	14	13
7	8	9	10	11	12
6	5	4	3	2	1

E.

S.

The townships are numbered in regular order northerly from the international boundary or forty-ninth parallel of latitude, and lie in ranges numbered, in Mani-

toba, East and West from a certain meridian line styled the Principal Meridian, drawn northerly from the forty-ninth parallel, and throughout the Northwest Territories, in ranges numbered westerly from other initial meridians styled the Second, Third, Fourth Meridian, and so on, according to their order westward from the Principal Meridian.

Each section of a township, or 640 acres, is divided into quarter sections of 160 acres each, styled, according to position, the North-West, North-East, South-West, or South-East quarter-section, and to facilitate the descriptions of letters patent of less than a quarter section, every section is supposed to be further divided into quarter-quarter-sections, or 40 acres, numbered as shown in the following diagram, and called legal sub-divisions:—

N.

13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

W. E.

S.

Disposal of Dominion Lands. In regard to their disposal the Dominion lands in Manitoba and the Northwest may be considered as divided into two classes, viz.: Even-numbered and odd-numbered sections.

Within a certain area the even-numbered sections, (excepting those numbered 8 and 26, which are allotted to the Hudson's Bay Company), are open for homestead entry, and the odd-numbered ones, (excepting 11 and 29, which are School Sections), are held for sale, and also as

land grants in aid of the construction of Colonization Railways.

The area in Manitoba and the Northwest which has been alienated for actual settlement, under homestead entries, amounts to nearly 18 million acres. The area set out for settlement by the surveyors is 85,900,000 acres.

The Homestead Regulations.

Any person, male or female, who is the sole head of a family, or any male who has attained the age of eighteen years, is entitled, on making application before the Local Agent of the District, in which the land he desires to be entered for is situated, and paying an office fee of ten dollars, to obtain homestead entry for any quantity of land not exceeding one quarter-section, or 160 acres, of the class of land open to such entry. This entry entitles the holder to occupy and cultivate the land to the exclusion of any other person, the title remaining in the Crown until the issue of patent for the land.

A settler who has been granted an entry for a homestead is required by the provisions of the Dominion Lands Act and the amendments thereto to perform the conditions connected therewith, under one of the following plans:—

Residence and Improvement.

(1) At least six months' residence upon and cultivation of the land in each year during the term of three years.

(2) If the father (or mother, if the father is deceased) of any person who is eligible to make a homestead entry under the provisions of this Act, resides upon a farm in the vicinity of the land entered for by such person as a homestead, the requirements of this Act as to residence prior to obtaining patent may be satisfied by such person residing with the father or mother.

(3) If a settler has obtained a patent for his home-

stead, or a certificate for the issue of such patent countersigned in the manner prescribed by this Act, and has obtained entry for a second homestead, the requirements of this Act as to residence prior to obtaining patent may be satisfied by residence upon the first homestead, if the second homestead is in the vicinity of the first homestead.

(4) If the settler has his permanent residence upon farming land owned by him in the vicinity* of his homestead, the requirements of this Act as to residence may be satisfied by residence upon the said land.

Community Homesteading.

In case a certain number of homestead settlers, embracing not less than twenty families, with a view to greater convenience in the establishment of schools and churches and for advantages of a similar nature, ask to be allowed to settle together in a hamlet or village, the Minister of the Interior may dispense with the condition of residence on the homestead, but the condition of cultivation must be carried out on each one. There are also provisions in the land laws for co-operative farming if undertaken by not less than ten persons.

A homestead entry is liable to be cancelled at any time that it is proved that the settler has not resided upon and cultivated his homstead for at least six months in any one year from the date of perfecting the entry; but in case of illness, properly vouched for, or in case of immigrants returning to their native land to bring out their families to their homesteads, or in other special cases, the Minister of the Interior may grant an extension of time during which the settler may be absent from his homestead, but such leave of absence will not count in the term of residence.

* The term "vicinity," used above, is meant to indicate the same township or an adjoining or cornering township.

A settler who avails himself of the provisions of Clauses (2), (3) or (4) must cultivate 30 acres of his homestead, or substitute 20 head of stock, with buildings for their accommodation, and have besides 80 acres substantially fenced.

The privilege of homestead entry only applies to agricultural lands.

Wood for Settlers.

In townships which consist partly of prairie and partly of timber lands, the timber lands are, where it is considered expedient, divided into Wood Lots of not more than twenty acres and not less than ten acres, and any settler not having more than ten acres of wood land on his homestead quarter-section is entitled, on making application before the Local Agent, to be entered for one of such lots, the applicant paying the price fixed for the same, and on his fulfilling the requirements of the Act, in respect to his homestead, a patent shall issue to him for such wood lot.

The cancellation of the homestead entry also involves the cancellation of such wood lot, and the forfeiture of the purchase money for the same.

The settler is prohibited from selling, prior to the issue of patent, any of the timber on his land, or on the appurtenant wood lot, without permission from the Minister of the Interior, under penalty of fine or imprisonment, or both, as well as the forfeiture of his home-

Land Held For Sale.

The odd-numbered sections of Dominion lands, excepting School Sections and where they may be reserved as grants in aid of Colonization Railways, are open for purchase at such prices and on such terms and conditions as may be fixed from time to time by the Governor-in-Council.

The School Lands.

The Parliament of Canada has made a liberal provision in aid of education in Manitoba and the Northwest Territories by setting apart Sections 11 and 29 in every township throughout the extent of the Dominion Lands as an endowment for such purpose. These sections are styled School Lands, and are administered by the Governor-in-Council through the Minister of the Interior. It is provided that they shall be disposed of by

sale at public auction at an upset price fixed from time to time by the Governor-in-Council; the moneys realized from such sales to be invested in Dominion securities, and the interest arising therefrom paid over to the Government of the Province or Territory within which the lands are situated, towards the support of the public schools therein.

Hudson's Bay Sections.

Sections 8 and 26 in every fifth township, that is, in townships 5, 10, 15, 20, 25, and so on, and Section 8 and three-quarters of Section 26 in all other townships are reserved to the Hudson's Bay Company, under the terms and conditions of the deed of surrender from the said Company to the Crown by which the Company is entitled to one-twentieth of the land within the "Fertile Belt," which is found to be satisfied by the allotment of the said sections.

The Settlers' Fuel.

Settlers will experience no difficulty in obtaining a sufficient supply of fuel. In those portions of Manitoba and the Northwest where wood is not found to any great extent, nature has furnished coal as a substitute. In Southern Manitoba wood may be obtained from the Turtle Mountains, Brandon Hills, and along the banks of the Souris River; the "Manitoba and Southwestern" Railway furnishing the best possible access to the Souris coal fields, from which a considerable percentage of the fuel used in Southern Manitoba and at many points on the main line of the Canadian Pacific railway, as far east as Winnipeg and westward to Moose Jaw, is obtained.

In that portion of the Province of Manitoba lying north of the Assiniboine nearly every half section of land will be found to contain a certain quantity of wood and some parts of the tract are very thickly wooded. That portion of the Province of Saskatchewan which lies to the south of the Qu'Appelle and South Saskatchewan Rivers is fairly supplied with either wood or coal.

Coal in Alberta.

In Northern Alberta and for some distance to the east of the Rocky Mountains, and along the rivers of Southern Alberta, an abundant supply of timber for fuel is obtained, and throughout the whole of Alberta there is an abundant supply of coal, and at no point in it will a settler probably be more than forty or fifty miles from a coal mine, and 70 per cent. of the district would come within fifteen miles of one. The coals found in Alberta vary from a high-grade lignite up to the highest grade of anthracite, and the supply is inexhaustible, sufficient to supply the entire world for centuries. In addition to the regular largely operated collieries situated at Lethbridge, Canmore and Anthracite, there are scattered all through the district smaller mines, the output of which will vary from 100 to 5,000 tons per annum. These latter are operated by the settlers themselves to furnish coal to their neighbors, and the price varies from 50 cents to $1.50 per ton at pit's mouth, the settlers teaming the coal to their residences.

At the points named the output is shipped partly to United States points, and partly to Canadian points as far east as Winnipeg and as far west as Vancouver, and the output is increasing rapidly.

Building Materials.

In addition to small local mills at a few points in Southern Manitoba and in Saskatchewan, there are mills situated on the Lake of the Woods, on Lakes Winnipeg, Manitoba, and Winnipegosis; at Brandon, Prince Albert, Battleford, Edmonton and vicinity, Red Deer or the Bow River, at Calgary and other points. On Sheep Creek and the Old Man's River these sawmills have an output varying from 200,000 feet per annum up to ten or twelve million, and, in addition, lumber is brought into the Northwest and Manitoba from British Columbia points, the price of said lumber varying from $8 to $30 per thousand, according to quality. Roofing material in

the shape of shingles is worth about $2 per thousand. The country is bountifully supplied with building material in the shape of limestone, sandstone, granite; also clays for the manufacture of brick, cements, etc.

The Ontario Public Lands.

In the Province of Ontario it is provided that public lands which have been surveyed and are considered suitable for settlement and cultivation may be appropriated as free grants. Two hundred acres is the limit of the Act regulating the disposal of them as free grants. A single man over eighteen years of age, or a married man having no children under eighteen years of age residing with him, can obtain a grant of one hundred acres. The male head of a family, or the sole female head of a family having a child or children under eighteen years of age residing with him or her, may obtain a free grant of two hundred acres, and may also purchase an additional one hundred at the rate of 50 cents (2s) per acre.

Conditions of Settlement.

The settlement duties required are as follows: To have at least fifteen acres cleared and under cultivation, of which two acres at least are to be cleared and cultivated annually during five years; to have built a habitable house at least sixteen by twenty feet in size; and to have actually and continuously resided upon and cultivated the land for five years. The locatee is not bound to remain on the land all the time during the five years, but may be absent on business or at work for, in all, not more than six months in any one year. A locatee who purchases an additional one hundred acres under the regulations must, within five years from the date of sale, clear fifteen acres and cultivate the same before being entitled to a patent; but he is not required to build a house or reside on the purchased lot where he holds it in connection with a free grant.

In the Rainy River district, to the west of Lake Superior, consisting of well-watered, uncleared lands, free grants are made of one hundred and sixty acres to a head of a family having children under eighteen years of age residing with him (or her), and one hundred and twenty acres to a single man over eighteen years, or to a married man not having children under eighteen years residing with him; each person obtaining a free grant to have the privilege of purchasing eighty acres additional at the rate of $1 per acre, payable in four annual instalments. The settlement duties are the same as set out above, excepting that only three years' residence is required. The soil of this district is a deep loam, and for an area of nearly a million acres is very fertile.

Where the Lands Are.

Outside of the free grant townships, uncleared land varies in price from 2 shillings to 40 shillings an acre, according to situation and soil. Cleared and improved farms can be bought at prices ranging from £4 to £10 an acre. The money can nearly always be paid in instalments covering several years.

The northern lands of the province have been explored within the past four years, and 60,000,000 acres of land opened up to settlers.

In the Province of Quebec the Government have surveyed about seven million acres of Crown lands.

Quebec Public Lands.

These lands purchased from the Government are to be paid for in the following manner: One-fifth of the purchase money is required to be paid on the day of sale, and the remainder in four equal annual instalments bearing interest at 6 per cent. But the prices at which these lands are sold are so low, viz.: from 1s 5d to 2s 5d, that these conditions are not very burdensome. The purchaser is required to take possession of the land sold within six months of the date of sale and to occupy it within two years. He must clear and have under crop, in the course of four years, ten acres for

every hundred held by him, and erect a habitable house of the dimensions of at least sixteen feet by twenty.

In the Temiscamingue settlement north of the city of Ottawa, twenty-five townships have been surveyed, five of which have been opened for sale, subject to settlement and pine tree regulations, at fifty cents an acre, half cash and balance in two equal annual instalments with interest.

The settlement dues are actual residence on the land purchased for four years from the date of purchase, clearing and having under cultivation and crop at least 10 acres for every 100 acres, and building a habitable house 16 feet by 20 feet.

New Brunswick Lands.

In the Province of New Brunswick it is estimated that there are about 7,000,000 acres of ungranted land. Crown lands may be acquired for actual settlement. (1) One hundred acres are given to any settler over 18 years of age, not owning other land, who pays $20 in cash or does work on the public roads, etc., equal to $10 per annum for three years. Within two years a house 16 ft. by 20 ft. must be built, and two acres of land cleared. Continuous residence for three years from date of entry and the cultivation of 10 acres in that time are required.

(2) Single applications may be made for not more than 200 acres of Crown lands without conditions of settlement. These lands are put up at auction at an upset price of $1 an acre. Purchase money to be paid with application. Cost of survey to be paid by purchaser. The above sections apply only to lands fit for agricultural purposes. Lands well timbered are not sold outright.

Nova Scotia Lands.

In the Province of Nova Scotia there are nearly one and a half million acres of land belonging to the Crown, a considerable quantity of which is unsuited for cultiva-

tion. The price of Crown lands is $40 per 100 acres. The distinction is made in the price between 100 acres and smaller lots, as the difference in cost of survey, defrayed by the Government, is very trifling. All minerals and ores are reserved to the Crown, except limestone, plaster and building materials.

British Columbia Lands.

In the Province of British Columbia, the land and pre-emption laws are as follow: Every head of a family, widower or single man, eighteen years of age, being a British subject, born or naturalized, has the right to pre-empt a tract of land not exceeding 160 acres in extent, west of the "Cascade Range" of mountains; or 320 acres east of these mountains. Personal residence during a period of two years, reasonable intervals of absence being permitted, and improvements to the average of $2.50 per acre are necessary to complete the pre-emption right. Upon proof of these, the settler is entitled to claim his Crown Grant in freehold to the tract occupied and improved. The price to be paid is $1 per acre, payable in four annual instalments, the first to be paid one year to the date of record. The patent will be granted upon proof by declaration, in writing, of the settler himself and two other persons, of occupation for two years from the date of pre-emption. No person can hold more than one pre-emption claim at a time.

Timber and hay lands may be leased from the Government. Timber lands pay a yearly rental of 15 cents per acre and a royalty of 50 cents per 1,000 feet on all logs cut.

X.

AGRICULTURE IN CANADA.

The great industry of Canada is agriculture. It employs more people than all other industries combined, and the value of its products is greater than the annual aggregate of all others. Nature has marked Canada for

one of the greatest agricultural countries of the world. The vast expanse of territory, the fertility of the soil, the rainfall of summer, snow and frost of winter and all climatic conditions are peculiarly favorable to the largest possible production of grains, roots and fruits. As land can be obtained cheaply in the East and for practically nothing in the West, and as the possession of a farm insures a man against the possibility of poverty for the remainder of his days, it is not surprising that the soil of Canada is attracting thousands of settlers from Europe every year.

Extent of the Farming Country. The agricultural belt extends across the continent. It forms a tract about 2,500 miles long and several hundred miles wide. The area now under cultivation amounts to more than thirty million acres. There remains untouched an area vastly larger, and virgin land is still to be had in all the provinces, especially in the West. It is difficult to see the limit to Canada's agricultural possibilities.

Altitude also has an important bearing on agriculture, and in this respect the Dominion has advantages when compared with many other countries. While Europe is said to have a mean elevation of 671 feet above sea level, and North America 748 feet, that part of North America occupied by Canada is placed at 300 feet.

Wheat is the greatest but not the only crop grown in the Dominion. Besides wheat there are oats, barley, peas, beans, corn (maize), buckwheat, rye, potatoes and other root crops, hay and hops. Tobacco, flax, and beetroot are also widely cultivated in Ontario, Quebec, and the West. Much fruit is raised. Nova Scotia has been famous for its apples for many years. In fact, in all settled districts of Canada, east of the Great Lakes and west of the Rocky Mountains, apples of fine flavour are grown. In areas containing hundreds of square miles, pears, peaches, and grapes are grown in the open air.

Small fruits, such as plums, cherries, strawberries, raspberries, currants, and gooseberries also grow plentifully. The Pacific slope permits the growing of hops and all sorts of temperate zone fruits.

Farmers Own Their Land.

Almost all the farmers of Canada own the land they till. It is difficult for people of the old countries where the land has long been all occupied and where it commands the highest prices, to understand that some of the best land in the world is to be had in Canada for almost the asking.

The settlement of these lands is heartily encouraged by the Government, because a fertile soil and great natural resources are of no benefit unless people are there to cultivate and develop them. Of course, it is also important to get a good class of settlers.

Anyone who will cultivate the land in the West can get a farm of 160 acres free; while in Northern Ontario and Quebec he can procure one on nominal terms, in some instances without any cost. He can also buy land from railway and other corporations at a low figure.

Any capable farm labourer, if he chooses to exert himself for a few years, may himself become an owner. During the last few years the large harvests of the Canadian farmers have been attracting great attention in Europe and in the United States. Tens of thousands of settlers are pouring in every year to take up the new land, chiefly in the great West, while many go to Northern Ontario and Northern Quebec. Railway companies are extending the railways and planning new lines.

It is estimated that the annual value of all farm crops and products in Canada is upwards of $363,000,000. The total value of farm property, lands, buildings, and farm implements is $1,500,000,000.

Government Aids to Agriculture.

The Government appreciates the importance of agriculture and does all in its power to advance the interests of the farmers. The education of

the farmers in the best methods is one subject to which great attention is being given. Another is the providing of ample railway and steamship facilities for the transportation of the products of the farm to the markets of the world.

In Ontario, Quebec and Nova Scotia there are special Agricultural Schools or Colleges for the practical education of young men in farming; there are also Dairy Schools in most of the provinces, where practical instruction is given in dairy work.

Farming Information Systematically Spread.

The largest agricultural school is the Ontario Agricultural College at Guelph, Ontario, founded in 1874. It has a large staff of experts and gives a splendid course of training in all branches of agriculture. A short course lasts for two years, and is intended to prepare young men for life on the farm. A student might remain a third year and go up for the examination for the degree of Bachelor of the Science of Agriculture (B. S. A.) This admirable college is known throughout America and abroad.

Among other provincial agencies for imparting information there are Farmers' Institutes, Travelling Dairies, Live Stock Associations, Fruit Growers' Associations, and Agricultural and Horticultural Societies. These are all maintained or assisted by the several provinces, and parts of the proceedings and many of the practical papers presented at the more important meetings of these associations are published by the Provincial Governments, and distributed free of charge. There are also Annual Agricultural Exhibitions of a highly important character, held in the larger cities in the autumn, where improvements in connection with agricultural and horticultural products, live stock, implements, etc., are shown in competition. These are visited by thousands of farmers, and thus much practical information is widely disseminated. The principles of Agriculture are also taught to some

UNIFORM TRIAL PLOTS OF GRAIN, EXPERIMENTAL FARM, OTTAWA

extent in the Common Schools in most of the provinces.

Talks on Cultivation.

The Government of Canada sends expert advice to the farmers through bulletins and by letter, when asked, and is carrying on various farming experiments in different parts of the Dominion. This system is the most thorough of its kind.

The most advanced and best methods of farming and dairying are explained to farmers in many of the provinces by lecturers who are sent out to address meetings during the winter.

Fruit growing is carefully studied by the Government authorities and by the fruit growers themselves. The fruit men have organizations for the exchange of information relative to the growing, packing, handling and marketing of their produce. The Fruit Growers' Association of Ontario is the largest and strongest of its kind in the world.

There are also associations of dairymen, of horse-breeders, cattle-breeders and of all special branches of agriculture. They have the one general aim of improving the methods of their business.

There are Five Experimental Farms.

The closest study of agricultural methods is made at the experimental farms maintained by the Federal Government. Five of these farms were established in 1887, in different parts of the Dominion, and were so located as to render efficient help to the farmers in the more thickly settled districts, and at the same time to cover the most varied climatic and other conditions which influence agriculture in this country. The Central Experimental Farm is situated at Ottawa near the boundary line between Quebec and Ontario, where it serves as an aid to agriculture in these two important provinces. One of the four branch farms has been placed at Nappan, Nova Scotia, near the boundary between that province and New Brunswick, where

it serves the farmers of the three Maritime Provinces. A second branch Experimental Farm has been established at Brandon in Manitoba; a third at Indian Head, in Saskatchewan, and the fourth at Agassiz, in the coast climate of British Columbia.

The Experiments Conducted.

At all these farms experiments are conducted to gain information as to the best methods of preparing the land for crop, and of maintaining its fertility, the most useful and profitable crops to grow, and how the various crops grown can be disposed of to the greatest advantage. To this end experiments are conducted in the feeding of cattle, sheep, and swine for flesh, the feeding of cows for the production of milk, and of poultry both for flesh and eggs. Experiments are also conducted to test the merits of new or untried varieties of cereals and other field crops, of grasses, forage plants, fruits, vegetables, plants and trees; and samples, particularly of the most promising cereals, are distributed freely among farmers for trial, so that those which promise to be most profitable may be rapidly brought into general cultivation. Experiments are also conducted in the cross-breeding of cereals and fruits, with the object of producing new varieties specially adapted to the climatic conditions existing in different parts of Canada.

During the last few years seeds and specimens have been sent out through the mails to about 200,000 farmers.

Methods of East and West.

The Eastern part of Canada has found it convenient to adopt concentrated methods of farming more rapidly than the West. The Maritime Provinces, Quebec and Ontario do not raise breadstuffs in nearly the same quantities as formerly. Instead of attempting to compete with the West in grain growing, the Eastern farmers have taken up the production of butter, cheese,

beef, pork, poultry, fruits, and hay. A ready market for all their surplus product is found in Great Britain. The West is getting into diversified farming to some extent but the great crop is wheat, which yields the largest and most certain returns for the least effort.

Cold Storage Facilities.

The Dominion Government has assisted in the export of dairy products and fruit, by the establishment of cold storage facilities by which such products can be carried in the best condition from the places of production to the markets of Great Britain.

What Canada Exports.

The value of the total exports of agricultural and animal products in 1904 was $109,982,435, of which wheat and flour formed the largest item, of twenty-five millions. Notwithstanding that there has been a large increase in the area of land under cultivation, the exports of coarse grains and fodders have been relatively much reduced. This, however, has been more than compensated for by large increases in the exports of animals and their products. These, in 1903, amounted in value to over sixty-four millions. The increase in the exports of dairy products has been surprising. In 1893, cheese was exported to the value of 13½ millions; eleven years later, in 1904, this had increased to 24 millions. The exports of butter last year amounted to $4,735,653. This extension of dairy work has produced a rapid development of the swine industry. Pork factories have been established in many parts of the Dominion, and much attention is now paid by farmers to the breeding of those classes of pigs best suited for the production of the highest quality of bacon. The exports of bacon and hams last year amounted to $13,000,000. By exporting animals and their products in place of coarse grains, the elements of fertility taken from the soil by these crops are to a large extent returned in the manure of the animals, and thus the fertility of the land

is kept up. There were $4,591,169 worth of apples sent abroad during the year.

The Smallest Province.

Prince Edward Island, the smallest of the provinces of Canada, is an island south of the Gulf of St. Lawrence. It is called the "Garden of the Gulf." It has a land area of 2,184 square miles, of which more than 600 square miles are still in forest and woodland. The Island is separated from the adjacent provinces of Quebec, New Brunswick and Nova Scotia by the Straits of Northumberland. It is 150 miles long, and varies from 9 to 30 miles in width, and has a population of about 104,000. During the summer daily communication is maintained with the mainland by two lines of steamers, and during the winter, by a line of boats specially built for winter navigation. The climate is moist and cool in summer, while in winter the temperature never drops to a very low point. The total precipitation in rain and snow is from 35 to 40 inches annually.

Of the 1,400,000 acres forming the island, 1,194,500 acres were shown by the census to be occupied, and 726,285 acres improved. Of the total, 447,737 were under crop, 3,713 acres in orchards and gardens, 284,741 acres in pasture, and 350,366 in woodland and forest. Practically 40 per cent. under crop, 30 per cent. in woodland and forest, and 24 per cent. in pasture. The census showed the total value of the farms to be $30,626,731, an average value of $2,314 per farm.

Agriculture is the paramount industry in this province, employing about 80 per cent. of the population. The soil is loamy and fertile, and most of it of a dull red color, having been produced mainly by the disintegration of a soft red sandstone. The chief crops produced on the Island are: Hay, oats, potatoes, turnips, with smaller proportions of wheat, barley and buckwheat. Formerly large shipments were made every year from the Island, of hay, oats, and potatoes, and by the shipping of these

crude products the land was being gradually impoverished and its crop-producing power reduced. Of late years a better practice has prevailed. In 1892 a stimulus was given to the dairy industry by the establishment of two cheese factories under the management of an officer of the Dominion Department of Agriculture, and this co-operative industry has since grown so rapidly that dairy products are now among the largest items of export from the Island. The larger part of the revenue is from cheese; butter is also made on a large scale, especially during the winter months. Associated with the dairy industry, the raising and fattening of swine has become an important branch of farming here; poultry and eggs are also produced and exported in considerable quantities.

Much attention has been given to the breeding of horses, for which the Island has an excellent reputation. Beef cattle are also raised in excess of the requirements of the home market and the surplus exported; and sheep breeding has become a large and successful feature in farm work.

Fruit growing is not yet an important industry, but is gaining in favour and may be extended with profit. Excellent apples are produced on the Island. Plums, also, and cherries, yield well, while all sorts of small fruits produce abundantly. Fine shipping apples can be successfully grown. Hundreds of young orchards are being planted. Shipments made to England have fetched good prices, the best proof of the good quality of the apples. Being on the seaboard, Prince Edward Island has the advantage of cheap ocean rates.

There are between four and five thousand acres in orchard, mostly young trees, with a steadily increasing area. There are also 100,000 other fruit trees, chiefly plum, pear and cherry, several varieties of grape vines also are under trial, many of which have already borne fruit.

Farming in Nova Scotia.

The most easterly province of Canada is Nova Scotia. It has an area of 20,680 square miles, of which a third is forest and woodland. There are 5,080,900 acres occupied, and of these, over 2,800,000 are woodland; 730,146 acres in crop; 1,135,246 acres in pasture, and 35,000 acres in orchards. The total value of the farms is about $72,500,000or an average value of $1,488 per farm.

Chains of lofty hills traverse the province, and, in most instances, the lower levels between these ranges are very loamy and fertile. There are also large areas of dyked lands, which are very rich in plant food, and produce heavy crops of hay annually for many years in succession, without being broken up. Then, if ploughed and sown with oats, using at the same time a sufficient quantity of timothy and clover seed, another series of hay crops may be harvested. The climate is comparatively temperate. The annual rainfall is from 40 to 45 inches.

The principal agricultural crops are hay, oats, wheat, turnips and potatoes, with smaller proportions of barley, peas, buckwheat and rye. The trade in cattle, sheep and swine, is large, but could be considerably increased with great advantage to the farmers. Increased attention has been given during the past few years to the dairy industry, and a number of cheese and butter factories have been established.

Fruit growing has developed during the past ten or fifteen years to a remarkable degree. The Annapolis and Cornwallis valleys are especially adapted, by soil, climate and situation, for the growth of fruits of high quality, and the choicest sorts of apples, pears, plums and cherries are produced there in abundance. Most of the small fruits also succeed well. The excellent flavour and good keeping qualities of the apples grown in Nova Scotia have won for them a high reputation in the European market. The Gravenstein apple, a high flavoured sort, is grown in great perfection. There are many other

LAND OF EVANGELINE, NOVA SCOTIA.

localities in this province where fruit growing is carried on successfully, and the exports of Nova Scotia fruits are large and are increasing. They have more than once amounted to above a half million barrels a year. Many new orchards have been recently planted, but there are still very large areas of land in these favoured valleys well adapted for orchard purposes. The nearness to the seaboard, the milder climate, and the facilities for shipping to Europe make it practicable to send apples from here at almost any time during the winter, when this fruit commands the highest prices. Cranberries are also grown in large quantities.

There is a school of horticulture associated with the Acadia University supported by government grants.

Farming in New Brunswick.

New Brunswick has an area of 28,000 square miles and a population of 331,000. About half is in woodland. Of the 17,863,000 acres of the province 4,443,400 are occupied, and of this 1,897,417 acres are under crop, 689,681 in pasture, 2,561,500 woodland, and 8,900 acres in orchards and gardens. The total value of the farms is $51,300,000, an average value of $1,441 per farm.

Professor Johnston, F.R.S., of England, carefully examined into the capabilities of the soil of New Brunswick, and reported: "The soil of New Brunswick is capable of producing food for a population of five or six millions. The climate is an exceedingly healthy one, and it does not prevent the soil from producing crops which, other things being equal, are not inferior in quality or quantity to those of average soils in England."

The average precipitation is about 44 inches.

Much of the cultivated land is rich and fertile, and, when well tilled, gives good crops of grain. There are considerable stretches of dyked land on which large crops of hay are grown. Half a million acres are planted in hay. Oats is the next crop and buckwheat third in im-

portance. Smaller areas are devoted to potatoes, wheat and barley. The country is well adapted for mixed farming, the production of grain and stock; the pastures are excellent and the root crops are large.

Considerable attention has been given in recent years to dairying. The cheese factories and creameries have increased from 10 to 68, most of the increase being due to development in the past five or six years.

As the fruit growing capabilities of New Brunswick become better appreciated the area under fruit is steadily increasing. Experience has shown that many fine varieties of the apple may be grown there, that were, up to a few years ago, believed to be too tender for that province. The area in fruit is about one per cent. of the cultivated area, and the estimated value of the garden and orchard product is three percent. of the total agricultural product. The number of apple trees in the province is nearly a million; less than half of these are in bearing, and the production of apples is over half a million bushels.

In favored situations pears are grown, and attest the capabilities of the province and the suitability of the climate. Plums are most extensively cultivated and are of fine quality. Cherries of fine quality are successfully grown and are being extensively planted. Grapes are grown to a limited extent and are very productive; the production from bearing vines is 3,000 bushels.

Farming in Quebec.

The Province of Quebec has a land area of over 218,000,000 acres, of which more than one-half is in forest and woodland.

The population, according to the census of 1901, is 1,648,898, a large proportion of which are engaged in agricultural pursuits. The field crops in this province occupy 4,704,396 acres, and hay 2,548,450 acres.

The total value of Quebec farms is about $436,076,000, an average value of $3,305.

The surface of the country is varied with ridges of

GUERNSEY CATTLE, HON. SYDNEY FISHER, KNOWLTON, QUEBEC.

mountains and lofty hills, diversified with fertile valleys, rivers and lakes. The climate varies much in different parts of the province. The summer is warm and pleasant and vegetation developes rapidly; the winters are cold, but the atmosphere is clear and bracing, and between December and March there is usually a good depth of snow, which gives excellent sleighing. Most of the country is well adapted for farming, the soil being loamy and fertile.

Hay is one of the principal crops grown, and this has been largely exported, but with the rapid extension of the dairy industry, which has of late years made wonderful strides in Quebec, much of the hay and most of the coarse grains are now more profitably fed at home.

The principal cereal crops are oats, peas, buckwheat, barley, rye, and maize. Potatoes and turnips are largely grown. Cattle are kept in increasing numbers, the number of milch cows being greater in 1891, according to the census of that year, than in 1871 by 35 per cent., and in 1901 greater than in 1891 by 40 per cent.

Tobacco is an important crop.

As in the other provinces, so in Quebec respecting dairying, upon which much attention has been bestowed during the past ten years. In 1881 Quebec had 140 cheese factories and 22 creameries. In 1891 she had 617 cheese factories and 111 creameries. In 1901 there were 1,992, in all, showing an increase of 1,264 factories, while the value of products increased in the ten years from $2,918,000 to $12,874,370. The province has the largest butter factories in the Dominion. The dairying business is growing with increasing rapidity.

Fruits are grown readily. There are good orchards in the valley of the St. Lawrence. Nowhere else does the celebrated Fameuse apple reach so high a degree of perfection as on the Island of Montreal and the districts adjacent. Here, also, many varieties of pears and plums of fine flavour are grown. In the Eastern Townships (on

the south side of the River St. Lawrence), which are noted for the excellence of their dairy products, fruit growing is carried on to a considerable extent, and quantities of apples are produced there. The apples of Quebec, as a whole, are highly colored and have a good flavour, but the winter in many parts of the province is too severe to admit of growing any but the hardier sorts.

Plums and cherries are cultivated with success, especially on the Lower St. Lawrence and on the Island of Montreal.

Grapes extend to 119 acres, with 150,000 vines, producing about 995,849 pounds of grapes.

The movement of settlement toward Northern Quebec is becoming important. A systematic effort to fill up a great area of fertile land here is meeting with success. The most active colonization is in the Lake St. John district, 176 miles northwest of Quebec City. The Saguenay River drains Lake St. John into the St. Lawrence, while the Quebec & Lake St. John Railway connects the district with Quebec City. A number of flourishing villages have been established. Upwards of 11,000 new settlers have gone from the older portions of Canada, from the United States, and from Europe. The settlements have ample railway, steamship, telegraph, and telephone facilities. A second scene of colonizing is the Timiskaming district, east of the Ottawa River, opposite the settlements in "New Ontario."

Farming in Ontario.

Ontario has a land area of 142,000,000 acres or 220,000 square miles, over 100,000 square miles being woodland. By the census the total of improved lands in the province was 13,266,335 acres, of which 9,213,000 were under crops; 5,248,180 acres were in pasture, and 332,000 acres in gardens and orchards. The population is over two million. The total value of the farm property is $800,000,000 and the average value of the farms $5,000.

The province includes the most southerly portion of

JERSEY CATTLE, DENTONIA PARK FARM, NEAR TORONTO, ONT.

SOME OF THE FARM BUILDINGS, DENTONIA PARK FARM, NEAR TORONTO, ONTARIO.

JERSEY CATTLE COMING IN TO BE MILKED, DENTONIA PARK FARM, NEAR TORONTO, ONT.

Canada. It extends north to James Bay, east to Quebec and west to Manitoba.

Ontario has a wonderfully varied climate, the extremes both of summer heat and winter cold being tempered by the presence of large bodies of water. In the south-western part the climate is mild; in those portions which lie within the influence of the Great Lakes, the winters are not severe and the summers are seldom oppressively hot. In the Ottawa and Upper St. Lawrence valleys the winters are moderately cold, but very exhilarating. In the northern portions of the province, the winters are longer and colder. The annual precipitation varies from 30 to 40 inches, while the soils in the different sections vary much in character, some consisting largely of clay, or clay and sandy loam mixed, others are more sandy, but nearly all are fertile and productive. There are considerable areas open for settlement in the districts of Muskoka, Parry Sound, Haliburton, Nipissing, on Lake Temiscaming, in the valley of the Rainy River, and in the great clay belt known as "New" or Northern Ontario, where the land is very suitable for agricultural purposes.

The province plants about 12,000,000 acres in field crops and hay, almost three million acres are annually devoted to oats, about the same to hay, a million to wheat and three-quarters of a million acres to barley.

The stock industry is a large one. The latest report available shows the total number of cattle in farmers' hands in this province was 2,674,261, of which more than one million were milch cows. Of sheep there were 1,642,726; swine, 1,977,386; poultry, including fowls, turkeys, geese and ducks, 9,683,573. A large trade is also done in horses; the total number of these animals held in the province was 639,581, among which there were breeding mares to the number of 98,485.

The dairy industry in Ontario is a very flourishing one, and has of late years become one of the most import-

ant and profitable branches of agriculture. The number of milch cows is increasing, and greater care is taken in improving dairy herds and in eliminating animals which are unprofitable. The money value of the cheese and butter products to Ontario amounts to fifteen million dollars annually.

In the production of dairy articles the development has been great. The first factory making cheese was established in 1855—a second was started in 1856 and a third in 1860. In 1871 the province had 323 cheese factories and creameries. In 1881 23 creameries and 551 cheese factories, a total of 574. In 1891 45 creameries and 893 cheese factories, a total of 938. In 1901 there were 286 creameries and 1,167 cheese factories, a total of 1,453 establishments.

The number does not tell all the tale, the later factories being larger and better equipped than the earlier ones.

Ontario Fruit Growing.

Ontario is the greatest fruit province of Canada. It is only within recent years that its wonderful resources as a fruit growing province began to be fully appreciated and developed. Now fruit growing is one of the chief industries. Nearly half a million acres of the best soil is given up to the production of fruit, and the area is steadily and rapidly extending.

The area of land occupied by orchards and gardens is 365,851 acres, and there are 15,269 acres in vineyards. The apple trees of a bearing age number 7,551,639, in addition to which there are of young trees 1,989,983. The latest crop report showed the production to be 43,659,413 bushels, an average of 6.15 bushels per tree. Apples are grown successfully over a very large part of the province. Beginning with the valley of the St. Lawrence, about Brockville, a good apple country is found, which extends to Niagara, a distance of 288 miles. In nearly all the Western and Central counties bounded by Lakes

VIEW FROM THE MOUNTAIN, NEAR GRIMSBY, ONTARIO.

VIEW FROM THE MOUNTAIN, NEAR GRIMSBY, ONT.

FALL PIPPIN APPLE TREE, OVER 100 YEARS OLD, MAY, 1902, GRIMSBY, ONTARIO.

PHŒNIX APPLE TREE, FRUITLAND, ONTARIO.

"LOUISE BON" PEAR TREE, GRIMSBY, ONTARIO.

CRAWFORD PEACH TREE, GRIMSBY, ONT.

PACKING PEARS AND APPLES FOR EXPORT.—GRIMSBY, ONT.

VINEYARD, FRUITLAND, ONTARIO

PEACH ORCHARD, ETC., FROM THE MOUNTAIN AT FRUITLAND, ONT.

VIEW FROM THE MOUNTAIN, NEAR GRIMSBY, ONT.

Ontario, Erie and Huron, there are many fine apple-growing sections, and the further north the varieties are grown the flavour and the long-keeping quality of the fruit is more highly developed.

In the Niagara peninsula from Hamilton to Niagara, also along the shores of the western part of Lake Erie, peaches are grown very successfully, and in those sections there are of bearing peach trees 811,725, and of young peach trees not yet bearing 470,772.

Grapes are also grown very generally throughout the province, but most of the larger commercial vineyards are located in or near the peach growing districts referred to. There are in all 2,620,036 grape vines in the province, which produced, according to the census of 1901, 23,156,478 pounds of grapes. A considerable portion of this crop is used in the manufacture of wine, which is a growing industry. There are also large orchards of pears, plums and cherries in different parts of Western Ontario. Small fruits are grown in great abundance in nearly every part of the province. Canadian markets are well supplied with home grown fruits, and there is a large surplus of long keeping sorts, which is sent chiefly to Great Britain. The evaporating or curing of apples, by which they may be preserved indefinitely, is carried on extensively in some localities, and fruits so prepared can be sent to distant markets where it would be impracticable to send the fruit in a fresh condition. About seven million pounds of evaporated apples were exported in 1904. Considerable quantities of apples and other fruits are also canned, and in this form Ontario fruits find their way to many distant markets. Tomatoes are grown extensively, and a large part of the crop is canned and sent to other countries.

Farming in Manitoba.

Manitoba is the great wheat province. It lies to the west of Ontario and to the north of Minnesota in the United States. It is midway between the Atlantic and the Paci-

fic. It has an area of 64,321 square miles or about 47,000,000 acres. At the last census the population was about 275,000 but immigration has since swelled the number greatly.

The surface is somewhat level, with stretches of prairie covering large districts, intersected here and there by valleys of considerable width in which run small rivers and streams, the banks of the valleys being usually fringed more or less with trees. In many other districts trees are also found in clumps, and belts of varying width, and along the ranges of hills which run across this province chiefly from the south-east to the north-west there are forests of considerable magnitude. The proportion of forest and woodland to the total area is estimated at nearly forty per cent.

Climate. The climate of Manitoba is warm in the summer and very cold during parts of the winter, with a clear sky and bracing dry air, which is very invigorating. Winter usually sets in during the latter part of November and is nearly over by the end of March, although occasional frosts occur at night for several weeks later. Seeding usually begins about the middle of April and harvesting about the third or fourth week in August. The annual precipitation for Manitoba is about 17½ inches, nearly 13 inches of which falls between 1st April and 1st October. The area of land estimated as available for farming purposes is about 27 million acres, whereas the acreage under crop is less than four million.

Any sturdy immigrant should, with a little care and perseverance, soon succeed in getting his land under crop. To support himself during the first period of settlement, and to buy a plough, oxen, and other equipment, he should have a little capital, though some settlers first hire out as farm labourers, and then take up land as they become familiar with the country.

The greater part of the soil in Manitoba is a deep, rich

BACKSETTING, NEAR BRANDON, MANITOBA.

FIELD OF WHEAT NEAR BRANDON, MANITOBA

CUTTING WHEAT NEAR BRANDON, MANITOBA.

vegetable mould of great fertility, with an abundant supply of humus. The proportions of the more important elements of plant food which exist in this soil, judging from a number of chemical analysis which have been made, are about double those found in good ordinary soil in Europe.

The Great Wheat Crop.

The principal grain crop in Manitoba is wheat, which is produced of excellent quality. The No. 1 hard wheat grown in this province and in the Northwest Territories brings the highest price and is not excelled by any other wheat in the world.

Tests made recently by three London bakers showed that this wheat has about 10 per cent. more albuminoids than the best European brands; and that 100 pounds of Canadian flour make more bread of excellent quality than the same weight of any other flour imported into Great Britain.

To grow a bushel of wheat costs the western farmer about 35 cents. All he sells it for above this is clear gain. He is now receiving 75 cents, or a profit of 40 cents per bushel.

The number of acres of wheat sown in Manitoba in 1903 was 2,442,873, and the total yield was 40,116,878 bushels, an average of 16.42 per acre. Oats stand next in importance, with an area of 855,431 acres and an average crop of 38.62 bushels per acre, followed by barley, with an acreage of 326,537, and an average crop of 26.66 bushels per acre. The total grain crop of this province in 1903 was 82,576,519 bushels. The total yield of potatoes last year was 4, 757,000 bushels; there was also a considerable acreage devoted to flax, rye, pease and roots.

The quantities of cheese and butter made in the province have increased very much. In 1881 there were no returns of cheese factories or creameries. In 1891 there were reported 8 creameries and 23 cheese factories, and

in 1901, 26 creameries and 43 cheese factories—a condition which indicates a development of more than twice that of 1891.

The indications all point to Manitoba becoming a great cattle raising region.

Potatoes are grown to great advantage in this province, are of large size, and produced in abundance. The climate is also well adapted to the production of all sorts of vegetables of unrivalled quality. Asparagus, pease, beans, cabbage, cauliflower, rhubarb, and many other vegetables are grown in perfection. The season is rather short for Indian corn, but some of the earliest varieties can usually be brought to a sufficient degree of maturity for the table. Tomatoes, as a rule, cannot be well ripened without some protection, during the ripening period, with glass frames.

The climatic conditions are unfavourable to the growth of the larger fruits, but many of the smaller fruits are produced in abundance.

Farming in the Territories. Westward from Manitoba are the two newest provinces of the Canadian Northwest, Alberta and Saskatchewan, with a total area of 550,000 square miles. These areas have been settled so fast by the flood of immigration from Europe and by the rush of settlers from the United States that they have recently been given authority to govern themselves as provinces. Up to the present time the administration was in the hands of a territorial government elected by the people. The same powers have been extended to the provincial governments with the aditional authority to borrow money on provincial credit and to incorporate and bonus railways.

In 1901 the census showed a population of 250,000. It is now estimated at about 500,000.

In the two provinces there are at least two hundred million acres of land suitable for farming purposes. Up to the present time about 11 or 12 million acres have

FARM NEAR MOOSE JAW, SASKATCHEWAN.

Average crop of wheat for past 15 years has been 28 bushels per acre on summer fallow land.

CUTTING WHEAT, INDIAN HEAD, SASKATCHEWAN.

RED FIFE WHEAT, 12 MILES FROM MOOSE JAW, SASKATCHEWAN.

WHEAT FIELD, INDIAN HEAD, SASKATCHEWAN.

SUMMER FALLOW PLOUGHING, INDIAN HEAD, SASKATCHEWAN.

SUMMER FALLOW PLOUGHING, INDIAN HEAD, SASKATCHEWAN.

PART OF FLOCK OF 2,200 YEARLING EWES AT GULL LAKE, SASKATCHEWAN.

been taken up by farmers, and two million are occupied by ranchers.

Broad and rolling plains characterize the Territories along their southern boundaries, and a wide belt lying north of the 49th parallel (which forms the boundary line between the United States and Canada) extending from about the 102nd parallel of west longitude to the base of the Rocky Mountains, has a dry climate, caused partly by the hot winds which blow northward from the great American desert. Beyond the spent force of these warm currents of air, beginning from 125 to 175 miles north of the international boundary, immense partly wooded districts are found, watered by streams of various sizes, where the soil is wonderfully rich and fertile, with conditions very favourable for mixed farming, and especially for the raising of cattle and for dairying. This great fertile belt extends from the western shores of Lake Manitoba westward for about 700 miles to the foot hills of the Rocky Mountains, and varies in width (from south to north) from 150 to 250 miles. There the native grasses grow far more luxuriantly than on the open prairies southward, while the belts and clumps of wood, interspersed with stretches of open country, afford favourable conditions for the growing of grain, and give good shelter for stock. Over this whole area the soil is fairly uniform in its fertility, and it is doubtful if another similar stretch of country, equal in productiveness, can be found anywhere.

In southern Alberta and western Saskatchewan there is a region where it was long believed the rainfall was insufficient for the production of crops. Irrigation works are turning this area into one of the most valuable portions of the west.

The Bushels per Acre.

The average yield of wheat in the West during fourteen years has been 20 bushels per acre, the highest yearly average being nearly 28 bushels. In individual cases as

high as 40 and 45 bushels per acre have been recorded. At the Government Experimental Farms, where more labor is expended on the land, the yield is much larger. This wheat is of the best quality and commands the highest price.

Considerable portions of the drier district are occupied by ranches where large numbers of beef cattle and horses are raised, and there the animals winter in the open.

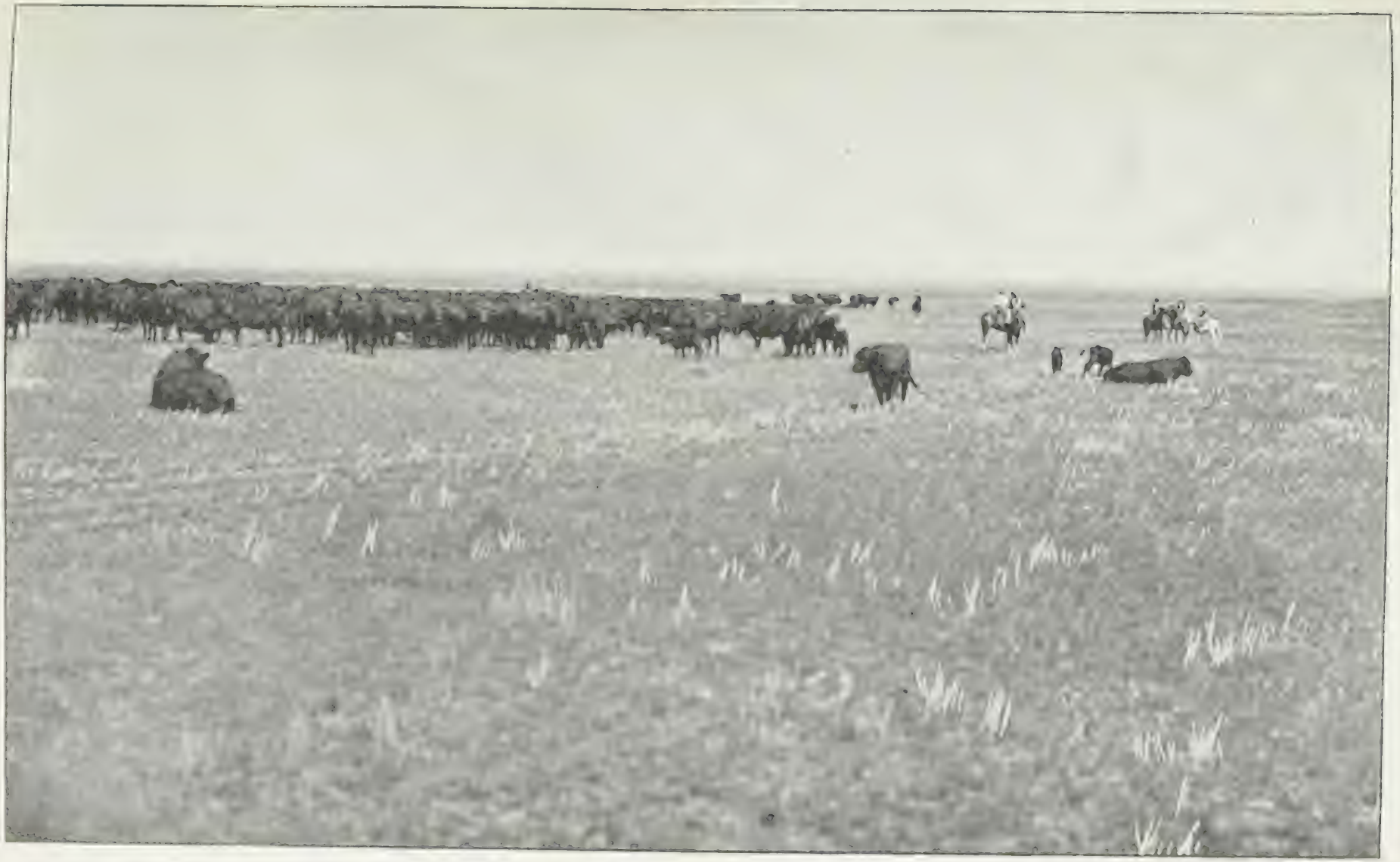
The ranching country of Canada is chiefly in Southern Alberta and South-western Saskatchewan. The ranches vary in size from 1,000 to 20,000 acres and over. They must always have a central supply of water for the use of the stock. This land is usually covered with the coarse, rich prairie grass, which makes good fodder both in summer and winter. It is peculiar inasmuch as it does not form into turf as in other countries, but grows more in tufts. Close cropping by sheep is injurious, and sheep ranching is limited to a small specified area in Central Alberta. Many of the ranches are owned by Englishmen who had considerable capital with which to begin, but the larger ones are for the most part operated by companies. During the past few years a large area has been taken up by settlers from the United States, who have moved their entire herds and flocks to these lands.

Cattle and horses are branded with the stamp of their owner and then allowed to roam at large on the plains. They remain out all winter and can live ordinarily on the grass; but wild hay is stacked every summer for use when a thaw is followed by frost, as it is then difficult for the cattle to eat through the crusted snow.

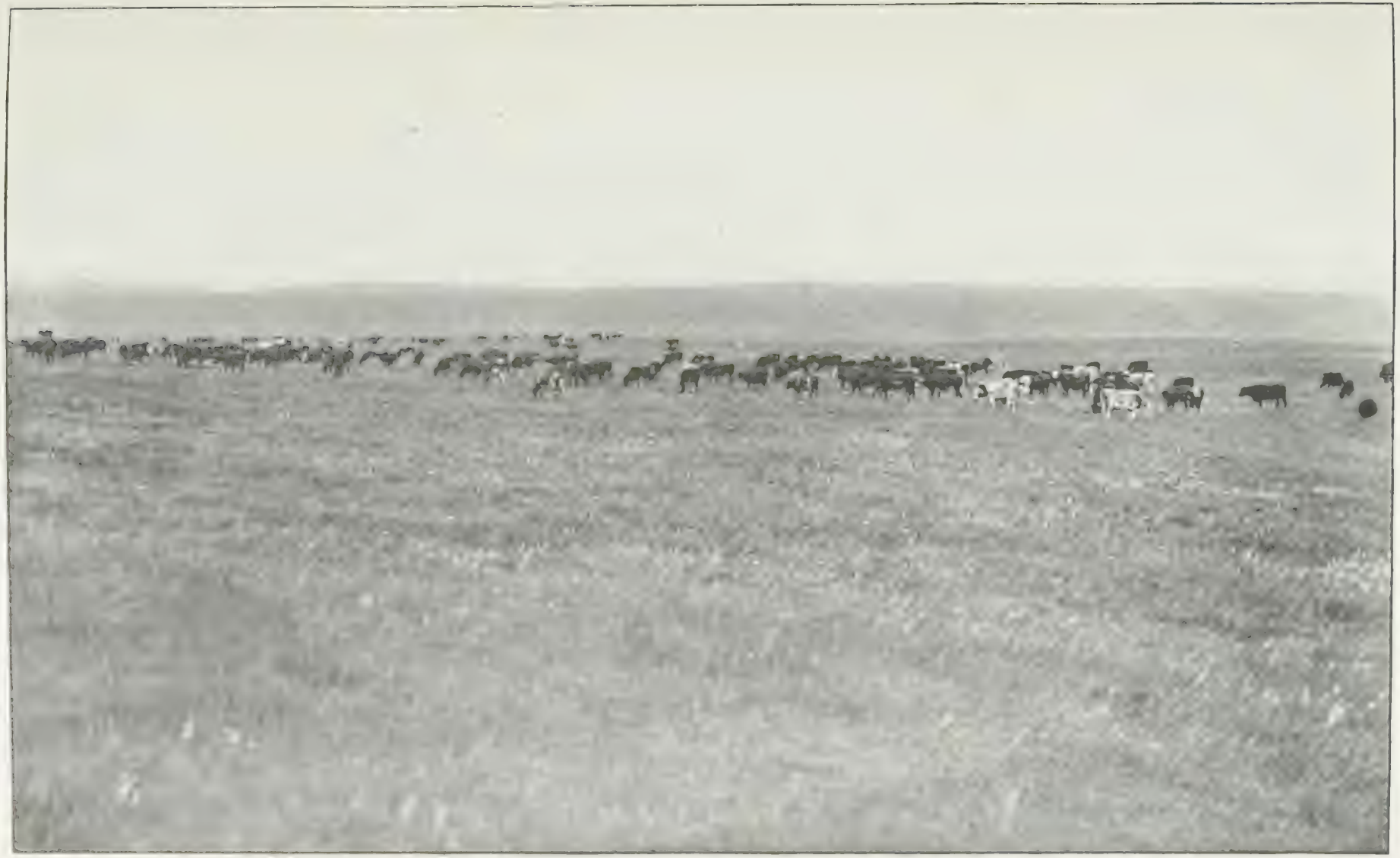
Twice each year—in the spring and fall—takes place what is called a "round-up" of all the cattle in each district. Cowboys are sent out from the ranches, and after driving all the wandering cattle or horses into a central place, they go through the herd, "cutting out" the cattle of their own ranches with the young. As the means of

LOADING CATTLE AT DUNMORE JUNCTION, ALBERTA.

HERD OF 700 GALLOWAY CATTLE AT STAIR, ALBERTA.



PART OF HERD OF 700 GALLOWAY CATTLE AT STAIR, ALBERTA.



CATTLE, NEAR CALGARY, ALBERTA.

CLYDESDALE MARES AT STAIR, ALBERTA.

identification, the brand is of the utmost importance, and the man who fails to respect it is severely punished. Cattle that have strayed in from other districts are sent to a single ranch and the various brands are advertised in the newspapers so that the owners may claim their cattle. Shipments are made to the mining districts of British Columbia, to Eastern Canada, the United States, and England.

In 1881 the Northwest Territories, now the two new provinces, had no creameries and no cheese factories. In 1891 the census enumeration found three creameries and four cheese factories. In 1900 there were 23 creameries and cheese factories with an output of $121,000.

Agriculture in British Columbia.

British Columbia, the Pacific Ocean Province of the Dominion, is 372,630 square miles in extent. It is a very mountainous portion of the world.

On the Pacific slope of the Coast Range, the climate is mild and genial, much like that of many parts of England, where the holly, laurel, rhododendron and the yew, flourish with the apple, pear, plum, and cherry and in some districts the peach. In those parts of the province between the Coast Range and the Rockies there are many fine valleys more or less utilized for farming and ranching. In some of these the rainfall is not sufficient to admit of the successful cultivation of crops without irrigation. There are, however, many mountain streams available for this purpose, and on some of the ranches very fine crops of grain are grown and excellent fruits.

While the climate of the coast district, especially near the seaboard, is much like that of the north of England, it gradually changes as one proceeds eastward from the coast, the summer becoming warmer and the winter somewhat colder as the distance from the ocean increases. The annual precipitation at Agassiz, which is about 70 miles east of Vancouver, is about 67 inches. In the valley of the Fraser River and on the delta near the

mouth of the river, there are considerable areas of land suitable for agricultural purposes where quite a large proportion of the population is engaged in farming. The principal crops grown are hay, oats, roots and potatoes, with smaller areas of barley and wheat. Hops are grown very successfully; so also is flax, of which the fibre in this climate is of an excellent quality. Cattle, sheep and swine are kept in limited numbers; some fairly good dairy herds have been brought together in different sections, and several butter factories are being successfully conducted.

A Good Fruit Land.

The climatic conditions of the coast district are remarkably well adapted for the production of fruit. Apples, pears, plums, and cherries grow well and bear profusely, and as these fruits can be grown to greater advantage on the higher "bench" lands, and on small pieces of cultivable ground on the sides of the mountains than they can on the more level valley lands, the total area available for fruit growing in this province is practically unlimited. Plums produce immense crops with very little effort, and raspberries, blackberries, currants, gooseberries and strawberries, are all grown with very satisfactory results. The summers are so temperate that there is not usually a sufficient sum total of heat to ripen the better sorts of outdoor grapes, nor to ripen tomatoes thoroughly, but in the drier interior country the summers are warmer, and there tomatoes and many varieties of grapes ripen well, and where supplies of water for irrigation are obtainable nearly all the fruits grown on the coast do well, and in some few locations peaches are grown with success.

The farm lands occupied amount to one and a half million acres, and the fruit trees planted include 220,684 apple trees of bearing age, the total of all kinds being 567,762 trees.

The total farm property is valued at $33,481,000 and the average value per farm at $5,467.

HOPS—COLDSTREAM RANCHE, VERNON, BRITISH COLUMBIA

PART OF ORCHARD AT COLDSTREAM RANCHE, VERNON, BRITISH COLUMBIA.

ORCHARD AT COLDSTREAM RANCHE, VERNON, BRITISH COLUMBIA.

XI.

THE FISHERIES.

The fisheries of Canada are the most extensive in the world, extending along the Canadian sea coast and innumerable lakes and rivers. The eastern sea-coast of the Maritime Provinces from the Bay of Fundy to the Strait of Belle Isle covers a distance of 5,600 miles, while the western sea-coast of British Columbia is reckoned at 7,180 miles, or more than double that of Great Britain and Ireland. While the salt water in shore area, not including minor indentations, covers more than fifteen hundred square miles, the fresh-water area of that part of the great lakes belonging to Canada is computed at 72,700 square miles, not including the numerous lakes of Manitoba and the Northwest Territories, all stocked with excellent species of food-fish.

With regard to their value, statistics prove it to be fully in proportion to their extent. The products of the fisheries, exported and sold on the Dominion markets in 1903 amounted to $23,000,000; but this by no means represents the value of the total catch, for in Canada the home consumption is very great— 100 pounds per inhabitant being calculated compared to 30 pounds in England. As the fisheries extend throughout the length and breadth of the Dominion, almost every settler is afforded an opportunity for catching fish for domestic use. This renders it impossible to give full returns of the whole catch. It is approximately estimated that the value of the home consumption last year was $15,000,000, giving a total of thirty-eight million dollars as the yield, exclusive of the catch by foreign fishermen.

Where the Fisheries Are.

Professor Prince has summarized the fisheries of Canada:

(1) The Atlantic division from the Bay of Fundy to the coast of Labrador, embracing deep sea and inshore fisheries, cod, mackerel, haddock, halibut, herring, hake, lobster, oyster, seal

and white whale fisheries. Annual value $12,000,000.

(2) The estuarine and inland waters of Nova Scotia, New Brunswick, Prince Edward Island and Quebec, including fisheries for salmon, shad, gaspereaux, striped bass, smelt, and (in the lakes) land-locked salmon, lake trout, maskinonge, etc., of the annual value of $2,500,000.

(3) The Great Lakes of the St. Lawrence and tributary waters. Lake whitefish, great lake trout, lesser whitefish, sturgeon, pike, perch (pickerel), black bass, brook trout, maskinonge, pike and numerous carps. Value, $2,500,000.

(4) Great Northwest lakes, including Manitoba, yielding lake white fish, sturgeon, pike, perch, tullibee, pike and gold eye. Value, including newly developed caviere and sturgeon sounds industries, $1,000,000.

(5) Pacific interior or Rocky Mountain plateau, comprising little developed fisheries, land-locked Pacific salmon, lake white fish, lake trout, and numerous cyprinoids, none of them identical with eastern species.

(6) Pacific Coast fisheries. Halibut, black cod, oolachan, anchovy, herring, smelt, and at least seven different species of Pacific salmon abound.

(7) Hudson Bay and peri-Arctic area. Whale, walrus, sea-trout, pike, sturgeon and possibly salmon, cod and shad, occur in these vast waters, Hudson Bay being an immense pocket 1,000 miles in length and 600 in width. The richest whaling grounds in the world are in this region.

OFFICIAL VALUATION OF THE YIELD OF THE FISHERIES BY PROVINCES:

PROVINCE	1902	1903
Nova Scotia	$7,351,753	$7,841,502
New Brunswick	3,912,514	4,186,800
Prince Edward Island	887,024	1,099,510
British Columbia	5,284,824	4,748,365
Quebec	2,059,175	2,211,732
Ontario	1,265,706	1,535,665
Manitoba and Northwest	1,198,437	
Total	$21,959,433	$23,101,878

FISHING FLEET AT THE MOUTH OF THE FRASER RIVER, BRITISH COLUMBIA.

Values of The Catch.

The values of some of the principal fish caught in 1903 are:—Cod, $3,778,430; lobsters, $3,625,382; salmon, $3,521,158; herring, $1,998,950; mackerel, $1,644,319; white fish, $883,032; trout, $728,153; halibut, $631,563; haddock, $586,806; pickerel, $577,283; sardines, $509,021.

THE DESTINATION AND VALUE OF CANADIAN FISH EXPORTS FOR 1893 AND 1903.

NAME OF COUNTRY	1893	1903
United States	$3,504,205	$3,775,815
British Empire	3,559,573	5,213,456
South and Central America	411,806	666,271
Italy	86,888	129,333
West Indies other than British	986,891	782,470
Portugal	61,935	91,212
France	125,189	703,138
Norway and Sweden	*	61,479
Other countries	6,563	377,021
Total	$8,743,050	$11,800,195

Much attention has of late years been given to the development of the fisheries. The Federal Government has granted a yearly sum of $150,000 or $160,000 as a bounty, to be divided among the vessels, boats and men engaged in the prosecution of the fisheries. The results which have followed the policy are an increase in the number and a great improvement in the build and outfit of the fishing vessels.

Figures Show a Change.

In 1885, after the system had been in operation a couple of years, the number of men engaged in the fishing industry was 59,493, the number of vessels 1,177, with a tonnage of 48,728 tons, and a value of $2,021,633. The number of boats was 28,472, with a value of $852,257; the number of fathoms of nets used was 3,014,384 and their value $1,219,284. The total value of vessels, boats, nets, weirs, lobster traps, fish-houses, piers, sailing and steam

smacks, connected with the fisheries amounting to $6,697,459. In 1902 the number of men was 77,801; of vessels, 1,296; tonnage, 49,888; number of boats, 41,667, and fathoms of nets, 5,623,700, the total amount invested being $11,305,959.

The number of men employed increased by one-third. The tonnage of the vessels and the number increased somewhat. The number of boats increased by over 46 per cent., and the value of the plant used in connection with fishing increased by about 70 per cent.

The number of men employed in vessels decreased by 416; the number of men employed in boats increased by 15,396.

The development therefore has been in the direction of boat fishing.

Fish Breeding.

The Dominion Government has provided fish breeding establishments, of which there are 16 in different parts of the country. From these, since 1874, when the policy of developing the fisheries by means of these establishments was expanded, there have been 3,391 million of fry distributed—an annual average of 117 million. During the five years, 1894-98, the annual distribution averaged 231 million.

The distribution has consisted of white fish, lobster, Atlantic salmon, Great Lake trout and sockeye salmon.

The fry distributed in 1902 consisted of:

Salmon	26,235,000
Lake trout	2,500,000
Lake white fish	108,000,000
Lobsters	120,000,000

Considerable attention is given to the cultivation of the oyster, and everything possible is done to maintain and expand the fisheries of Canada.

An intelligence bureau, with 55 reporting stations distributed along the coast of the Maritime Provinces,

gives timely warning to the fishermen of a strike in of fish, of the weather, and of other facts, early information about which is important to success.

Bait cold storage is also provided and has proved a success in the Province of Nova Scotia and on Prince Edward Island.

XII.
MINERAL WEALTH.

Canada yields many economic minerals; as the country occupies the northern half of North America and presents the most varied geological conditions this could hardly be otherwise. In 1886 the value of minerals produced amounted to $2.23 per head of population. This has increased to about $11.29 per head. The census of 1891 placed the number of miners at 13,417. This was an increase of 6,876 over the ten years previous. The census of 1901 places the number of the miners at 38,071. This does not include the Yukon where there are five or six thousand more.

This was an increase of 6,876 over the number given by the census of 1881, and indicated a very great development in the mining industries of the country. The census of 1901 showed a still greater development in the mineral wealth of the Dominion, the number of miners given being 38,077, not including those of the Yukon, where the mining population may be said to embrace one in every five of the population.

The Mining Centres.

Separated into provinces these miners were found as follows:—

	1901	1891	Increase
British Columbia	9,863	4,591	5,272
Manitoba	600	9	591
New Brunswick	936	97	839
Nova Scotia	11,400	5,660	5,740
Ontario	8,971	1,034	7,937
Prince Edward Island	96	18	78
Quebec	5,120	1,534	3,586
Alberta and Saskatchewan	1,091	474	617
Total	38,077	13,417	24,660

The number of miners indicates with accuracy the portions of the Dominion whose mineral wealth has been exploited and partially developed. Nova Scotia and British Columbia have been for years pre-eminently the mining sections, as will be seen from the fact that over 76 per cent. of the miners found occupation in those two provinces in 1891. The census returns for 1901 indicate, however, that the other provinces have made more rapid strides than the two, since in 1901 they had over 41 per cent. of the miners, as against 23½ per cent. in 1891.

Improved Methods.

The development of mining since 1891 has been more rapid than previously. Greater care has been bestowed on the management of the mines. Skill in administration and skilled labor have been brought to bear upon the mining industry with important results. Thus, in 1888, the number of tons of coal raised in Nova Scotia, per man employed, was 339, in 1894 it was 370 tons and in 1903 it was 473 tons.

The annual returns to the geological survey give the value of the minerals produced in the Dominion since 1886, including 1903, as $307,654,000.

The development may be judged by the average of three year periods.

1886-88	Annual	Average	$11,355,500
1889-91	"	"	16,584,627
1892-94	"	"	18,532,452
1895-97	"	"	23,995,525
1898-01	"	"	50,928,725
1902-03	(2 years)	Annual Average	63,596,154

Dividing the totals into metallic and non-metallic, we have:—

—	1886-1888	1889-1891	1892-1894
Metallic	2,275,225	4,095,815	4,339,247
Non-Metallic	8,830,280	12,205,485	14,273,204

—	1895-1897	1899-1901	1902-1903
Metallic	9,329,909	37,333,569	34,680,585
Non-Metallic	14,415,615	22,633,724	29,118,038

Since 1886-8 metallic have gained....$32,405,360
Since 1886-8 non-metallic have gained. 20,287,758

The greatest gain has been, therefore, in the output of metallic minerals.

Advance in Values.

Of these the most important are:—Copper, which has risen from an average value of $454,629 in 1886 to $5,728,267 in 1903; gold, from $1,202,563 to $18,834,490; lead, from $12,230 to $762,660; nickel, from nothing to $5,026,000 and silver from $317,932 to $1,700,779.

In the non-metallic group the greatest gains are:—Coal, from $5,000,000 to $15,957,946; graphite from nothing to $33,500; mica, from $29,677 to $159,473; natural gas, from nothing to $268,000.

The mineral wealth of Canada is so great that an American authority, referring to it, says:—"To particularize the undeveloped wealth of this northern land would require volumes."

As might be expected from her vast areas and from her varied geological formations, Canada is marvellously rich in minerals, the chief of which of economic importance, according to the reports of the Geological Survey, are classed as follows:—

1. Metals and their Ores.
2. Minerals used in certain manufactures.
3. Minerals used in Agriculture.
4. Minerals used as Pigments.
5. Combustible and Carbonaceous materials.
6. Refractory minerals.
7. Minerals applicable to Building.
8. Minerals for grinding and polishing.
9. Minerals applicable to miscellaneous purposes.

Metals and Their Ores.

Sir William Dawson, writing on the Iron and Coal of Nova Scotia, says:—"It is a remark often made that the iron ores of Canada, rich and magnificent though they are, suffer in their practical value on account of their distance from the mineral fuel required in so great quantity whenever smelting processes are undertaken on a large scale. To a certain extent better means of communication and larger and more economical working must remove this disadvantage. It should, however, be borne in mind that the great iron deposits of Nova Scotia, equal in extent and value to any others in the Dominion, are not so situated; but are in close proximity to some of the greatest coal fields in the world."

During recent years business men have appreciated the importance of the iron deposits of the eastern part of the Dominion. Smelting works have been erected at a large cost in Sydney, Cape Breton, in close proximity to the famous coal areas and to the great limestone deposits of the same island.

The active works in Canada are the Nova Scotia Steel Company's blast furnace of Ferrona, Nova Scotia; The Hamilton Steel and Iron Company; The Canada Iron Furnace Company, Midland; The Dominion Iron and Steel Company's works at Sydney, Cape Breton; The Canada Iron Furnace Company, Radnor; Deseronto Iron Company's works; The Drummondville Furnaces; The Londonderry Nova Scotia Iron Works; The Consolidated Lake Superior Company at Sault Ste. Marie. The united investment at these works amounts to above fifty million dollars.

The Dominion, in 1900, made and imported 167,169 tons of pig iron, iron kentledge and scrap. Of this amount, 101,839 tons, or 61 per cent., were made in Canada. In 1902, the total quantity was 384,718 tons, of which 89 per cent. was home made.

When Canada began seriously to develop the iron

ALGOMA IRON WORKS AND THE SULPHITE PULP MILL, SAULT STE. MARIE, ONTARIO.

wealth, she offered a bounty of $1.50 per ton upon all pig iron manufactured in Canada. This was in 1883. Since then various changes have been made in the amount of bounty and the method of its application. The result, however, is the gradual development of the iron industry. In 1884 the imported pig iron was 64 per cent. of the whole consumed. In 1902 the imported pig iron was only 11 per cent. of the whole consumption.

Iron Deposits.

Magnetic ores occur abundantly throughout the several counties of Ontario; and the Legislature of the province has set aside the sum of $125,000 as an Iron Mining Fund, out of which the Provincial Treasurer is authorized to pay $1.00 per ton of pig metal product of iron ores raised, mined or smelted in Ontario.

Hematite iron ores are found in all parts of Canada. Geologically, Canada's hematites have a wide range in time. They are found in the Laurentian, Huronian, Lower and Upper Silurian, Devonian, Carboniferous and Lias formations.

In New Brunswick large deposits of hematite ore are found near Woodstock, and the iron produced is remarkable for its great hardness and strength. When converted into wrought iron, it is pronounced, on the authority of Sir William Fairbairn, to be specially adapted for the plating of ironclad vessels. It is also admirably adapted for steel.

Chromic iron ores and Titanic iron ores are found in different parts of Quebec. Since these chromic fields were opened, there have been shipped about 12,000 tons of chromite.

Limonite and bog iron ores are also widely distributed.

Clay iron-stones are found in rocks of various ages in all the provinces. Those of the Tertiary Age occur in the lignite-bearing strata, west of Red River. Of these, the late Dr. George M. Dawson, who was Director of the

Geological Survey, writes:—"Should these ores ever come to be worked, limestone for use as a flux could be obtained in considerable quantities from the boulders of silurian age which strew the plains."

On the Pacific Coast.

The iron ores of British Columbia are abundant; Dr. George M. Dawson, C.M.G., describes the bed on Texada Island as a very rich magnetic ore assaying 68.4 of iron, and a very low percentage of phosphorus and other impurities, with only 20 miles of the navigable waters of the Strait of Georgia between it and the Comox coal field, and both the iron and the coal close to the water's edge.

Production of Lead.

The chief ore of lead found in Canada is the sulphuret or galena. At Thunder Bay and the Nepigon region to the north of Lake Superior very numerous and valuable veins of ore are found.

The statistics of export sufficiently indicate the extent of the development and the provinces in which that development has taken place.

In 1890 the quantity mined in Canada was 10,500 lbs. In 1890-1-2 it has risen to an average of nearly 70,000,000 lbs. In 1890 the value of lead and manufactures of lead imported was $342,580, and in 1903 it was $164,392.

British Columbia is the great source of lead for Canada. It is there mined chiefly as an ore of silver. Small veins occur in the Provinces of Ontario, Nova Scotia and New Brunswick.

Copper Deposits.

Copper occurs in Canada in the forms of native or metallic copper and of the sulphuretted ores. The former is confined principally to the rocks of the upper copper-bearing series on Lake Superior. The latter are widely diffused. In Ontario, on the north-eastern shore of Lake Huron, extensive veins of rich copper ores have been mined for years, often with great profit. On Lake Superior the

native copper, which has been so extensively and profitably worked on the Michigan shore, also exists in large quantities on the Canadian shore.

In Quebec and the other Eastern provinces, especially in Cape Breton Island, deposits of copper have been found and in many cases mined. In the Eastern Townships of Quebec, the copper occurs in small quantities in the pyrites mined chiefly for the production of sulphuric acid.

In the Province of Ontario, the nickel copper mines of the Sudbury district are the chief source of copper.

British Columbia has only recently come into the field as a copper producer. Its copper comes mainly from the Nelson mining district of West Kootenay. The real value of the ore lies in the gold and silver it contains. A few hundred tons of fair copper ore have been shipped from Texada Island.

In a paper read before the Institute of Mining Engineers in September, 1899, Mr. Wm. M. Brewer says:—"It may be safely said that the western portion of Vancouver Island presents to-day features of great promise so far as copper deposits are concerned."

The export tables of the Dominion show that since Confederation 80,086 tons of fine copper and 136,000 tons of copper ore have been exported. The value of the whole is over $19,000,000, an average of $530,000 a year. In the year 1903, the value of the export was $2,907,394, thus showing the development that has taken place of recent years.

The Nickel Production.

Canada has but one serious rival in the production of this metal — the French colony of New Caledonia. The deposit in Sudbury, Ontario, is nickeliferous pyrrhotite, and the discovery was made by the navvies of the Canadian Pacific Railway, while making a cutting through a small hill. Since work began, thirteen years ago, 67,000,000 pounds have been extracted, an average

of over 5,000,000 pounds a year. The extent of the development that has taken place may be measured by the fact that the output in 1903 amounted to over 12,500,000 pounds. As a result of the construction of the Canadian Pacific Railway and the consequent discovery of the Sudbury deposit over thirty million dollars of this scarce metal have been taken out.

The Quantity of Gold.

This metal has been found in almost all of the Provinces and Territories of Canada. Practically, however, its production is limited to the Provinces of Nova Scotia and British Columbia and the new district of Yukon, which, containing the Klondike region, has sprung to the front within the past few years.

Of the $200,000,000 of gold which Canada has contributed to the world's store, British Columbia's share is 80 million dollars, Nova Scotia's 16½ million, Ontario's 2 million, Quebec 290,000, the remainder coming from the Northwest, and chiefly from Yukon district.

In the Province of Nova Scotia gold mining has been a very steady industry, the annual average output since the discovery, in 1862, being $400,000, growing to $556,000 average of five years, 1899-1903.

The gold produced in Nova Scotia is by quartz mining, no placers of any importance having been discovered.

In earlier years the quartz seldom ran below $12 per ton. From 1862 to 1903, 1,554,308 tons of quartz have been crushed, showing the production of gold to be at the rate of $10.50 per ton. In 1903 the value was $5.17 per ton. The cause of this is that the extraction of gold is carried on more scientifically and economically now than it was in the early years, and that thus it has become profitable to treat low grade ores.

In the Province of Quebec not much mining for gold has been performed.

While gold has been produced in Ontario for several

years, it is only since the establishment of the Bureau of Mines that any well-directed effort has been made. In 1891 the value of the gold reported found in Ontario was only $2,000. In 1899 the output reached high-water mark, and the value of the product was $424,568. In 1902 the product was valued at $229,828. Much developmental work has been done during the past year, and reports are favorable for a large increase.

In Alberta a small quantity of gold is obtained from the bars in the Saskatchewan River, near Edmonton. The amount varies from year to year, the highest being $55,000. The total thus procured since 1887 is $282,946.

British Columbia has been a producer of gold since 1862. The earlier years were prolific of gold yield. There was a decrease in the production from 1882, and the lowest point was reached in 1893, when the product of the year had a value of $379,000. A change came, and production increased rapidly. The million dollar mark was reached in 1895. The two million dollar mark in 1897; the four million in 1899; the five million in 1901, and the six million in 1903.

The Yukon District of the Northwest Territories has been yielding gold since 1885. It is only, however, within a very recent period that the gold deposits of the Klondike section have attracted the attention of the world. The value of the product sprung from $300,000 in 1897 to an average for the past four years of $17,000,000 a year.

Distribution of Silver.

The two Provinces of Ontario and Quebec are producers of silver in small quantities. The Province of British Columbia is the chief producer.

In the "seventies" Ontario produced from a mine on Silver Islet, near the mouth of Thunder Bay, Lake Superior, a considerable quantity of silver.

In British Columbia silver was produced at the rate of a few thousand ounces a year. It was, however, in

1895 that the production went over a million ounces. The returns of the Dominion Geological Survey give the production of 1901 at 5,151,333 ounces. The total production of the province from 1887 to 1901 amounted to 27,870,892 ounces. The total production of the three provinces in the same period was 31,934,607 ounces.

Among other metals found in Canada are cobalt, zinc and platinum.

A Cobalt Find. Near Haileybury on the Temiskaming and Northern Ontario Railway—a new Government line—finds of native silver and cobalt-nickel has undergone considerable development. The veins, though narrow, averaging not more than eight or ten inches in width, are exceedingly rich. Seldom has native silver been found anywhere in greater profusion. A shipment of a carload of twenty tons of ore was sold at the rate of nearly a dollar a pound.

The principal value at present is in the silver but the ore is essentially an arsenide of cobalt and nickel and it is believed the deposit will produce largely of these metals, especially cobalt, which runs from 12 to 15 per cent. in the weight of the vein contents.

Of minerals used in certain chemical manufactures, Canada has iron pyrites, chromium, magnesia, manganese, titanium and molybdenum.

Of minerals used in agriculture, apatite, gypsum, marl and salt are widely diffused.

Gypsum is found in great abundance in Ontario, the outcrop extending from Niagara River to Lake Huron for 150 miles. In Quebec the supplies come mainly from the Magdalen Islands. Extensive and practically inexhaustible beds are found in New Brunswick and Nova Scotia.

The Salt Deposits. The salt produced in the Dominion is almost all manufactured in the Province of Ontario. The salt beds of southwestern Ontario cover an area of 2,000 square miles. They were

discovered first at Goderich, in 1865, in boring for petroleum, and since then wells have been sunk at a dozen other places. In Kincardine the upper bed is reached at about 900 feet from the surface; in Goderich at 1,000 feet; in Courtright at 1,600 feet. A well drilled in Windsor in 1892 yielded salt at a little over 1,127 feet. Subsequently another well was drilled by the same company—the Canadian Pacific Railway Company—near the first. In each case the company drilled through 40 feet of rock salt, then encountered rock 23 to 30 feet thick, then a second layer of salt 23 feet thick, then rock 5 feet thick, and then 38 feet of salt.

Among minerals used for pigments are iron ochres, which are found and extensively manufactured in Quebec and Ontario, and in smaller quantities in the eastern provinces.

Sulphate of barytes is also widely distributed.

Fuels of Canada.

The fifth subdivision includes combustible and carbonaceous materials. The coal areas of Canada are estimated at 97,200 square miles, not including areas in the far north—known, but as yet undeveloped. These are:—

1. The coal fields of Nova Scotia and New Brunswick.
2. Those of the Northwest.
3. Those of the Rocky Mountains.
4. Those of British Columbia.

The coal areas of Nova Scotia and New Brunswick cover about 18,000 square miles. The productive areas are divided into

(a) The Cape Breton area.
(b) The Pictou area.
(c) The Cumberland area.

These are all in the Province of Nova Scotia, New Brunswick containing seams of sufficient magnitude to be worked, but nothing has yet been done to develop them.

Nova Scotia Coal Fields.

The known productive coal fields of Nova Scotia occupy an area of about 690 square miles, of which the Sydney and Cumberland fields comprise 650 square miles, the remainder being divided between the Pictou and the smaller fields of Antigonish and Cape Breton. The number of collieries is as follows:—

Cumberland, 6, viz.:—Joggins, Minudie, Chignecto, Fundy, Scotia, and Springhill.

Pictou, 3, viz.:—Intercolonial, Marsh and Acadia.

Cape Breton, 8, viz.:—Cape Breton, Dominion, Sydney, North Sydney, Mabou, Port Hood, Inverness Railway and Gowrie and Blockhouse.

The sales from all in 1903 amounted to 4,621,074 tons, of which over 70 per cent. came from the Cape Breton collieries, the remainder being chiefly distributed between the Pictou and the Cumberland collieries, in the proportion of 13 per cent. from the first named and 11 per cent. from the second.

During twenty-five years the total output of the coal mines of Nova Scotia has been 60,000,000 tons, an average of 2,380,000 tons per annum. The output of 1903 was 5,255,247 tons.

The Dominion Coal Company have begun operations on a large scale for the manufacture of iron and steel and these will result in an immense development in the production of coal.

The seams in the Cape Breton basin vary in thickness from 5 to 9 feet. In the Pictou basin they vary from 6 feet to 34 feet 7 inches in thickness.

Taking one analysis from each coal field in Nova Scotia, we have:—

—	Mines		
	Sydney, C.B.	Intercolonial, Pictou	Spring Hill, Cumberland
	p.c.	p.c.	p.c.
Moisture	1.54	1.52	3.66
Volatile combustion	36.30	29.40	28.55
Fixed carbon	57.01	60.08	62.78
Ash	5.08	9.00	4.32

The coal found in Nova Scotia is bituminous, and is in nearly all cases coking. It is a true coal from the middle or productive measures of the carboniferous division. All the Nova Scotia coal fields are on tide water.

There are no coal measures from New Brunswick westward until Manitoba is reached.

The Western Coal Fields.

Of the Manitoba and Northwest the late Dr. G. M. Dawson, Director of Geological Survey, says:—

"The known areas of true and lignite coals of the best quality extend along the base of the Rocky Mountains from the 49th parallel to the vicinity of Peace River, a distance of 500 miles, with an average width of, say, 100 miles, giving a total area of 50,000 square miles. It is not intended to affirm that the whole of this area is continuously underlain by coal, but outcrops of coal are so general throughout it that, taken in connection with the character and regularity of the strata, it may be stated with safety that it is throughout a coal field. An additional area stretching eastward as far as the Souris River and Turtle Mountains yields lignites only, but these, often of very good quality and well fitted for local uses, may be roughly estimated at 15,000 square miles."

The third coal area of Canada is that in the Rocky Mountains. This, though small as measured by miles, contains much coal of the best quality. One of these areas has been found to hold several seams of anthracite of very good quality. Those in the Cascades Basin have an area of sixty square miles. The small coal area of Crow's Nest Pass is very rich.

From the Territories the coal accounted for as produced was 456,000 tons in 1898, of which 20,000 tons were anthracite.

The fourth area is that of the Pacific Coast. Vancouver Island contains two productive coal areas—Na-

naimo and Comox, the first about 200 and the second 300 square miles. A very rough approximation gives 800 square miles as the extent of the coal areas (chiefly anthracite) of Queen Charlotte Islands.

Pacific Coast Deposits.

In quality the Vancouver Island bituminous coals are found to be superior for all practical purposes to any other coals on the Pacific Coast. They rank in San Francisco with the West Hartley coals. These widely-spread coal deposits on Vancouver Island entitle the Province to be called the Britain of the North Pacific.

The output of the coal mines of British Columbia, beginning in 1874 with 90,000 tons, has steadily increased, and in 1903 was 1,660,000 tons.

In the Comox district the productive measures show ten seams of coal with a total of 29 feet 3 inches, the thickest seam being 10 feet.

The character of the coal is evidenced by the following average analysis of the nine mines in the Crow's Nest field, and of 13 mines on Vancouver Island: —

	Crow's Nest.	Vancouver Island.
Moisture	.91	1.55
Volatile combustive	19.01	31.70
Fixed carbon	69.94	52.72
Ash	9.83	10.24

Canadian Asbestos.

The asbestos deposits of Canada are found in the rock group known as the serpentines, occurring in many parts of the Dominion. In the Eastern Townships of the Province of Quebec large workable deposits are located, and there the chief mining operations are carried on. The production has steadily increased. In 1880 the output was 380 tons, valued at $24,700. In 1903 the export of asbestos and asbestic was 30,661 tons, valued at $955,405. There is a great development in the production of this mineral. The long fibre of the Canadian deposits gives

asbestic products of Quebec a peculiar advantage in the markets of the world.

Next in order are the refractory minerals. Canada has of these: plumbago, mica, soapstone, and sandstone.

The plumbago is a pure crystaline, and is widely distributed. The others mentioned are very generally distributed.

Materials for brick, pottery and glass abound. Limestone for common lime is abundant, as also are aigillaceous limestones and domites yielding good hydraulic cement.

Corundum Deposits.

Grinding and polishing materials are found in all the provinces. Corundum has been found recently in considerable quantity, and the Ontario Bureau of Mines (Report for 1897) published a report of forty or fifty pages on the subject of corundum in that province.

Of building stones, Canada possesses an abundance. Granite, comparing favorably with the best granites of other countries, is found in many localities. Sandstones of various colors and textures abound. The collection of marbles in the Geological Museum at Ottawa indicates a profusion of all kinds. Flagstones, roofing slates, lithographic stones, etc., are abundant and of good quality.

Agates, amethysts, and jasper are found in the Lake Superior region and in other parts of Canada.

There are numerous mineral springs in different parts of Canada, and mineral waters are bottled, nearly a million dollars of output being reported in the census.

XIII.

THE LUMBER INDUSTRY.

The forests of Eastern Canada formerly extended in an almost unbroken stretch from the Atlantic Ocean to the head of Lake Superior, a distance of over 2,000 miles.

The great plains of the Northwest always, within the memory of man, have been sparsely lumbered. On the Pacific slopes of the Rocky Mountains, down to the shores of the ocean, there are mammoth trees that can favorably compare with the growth of any region on the globe. From the earliest days of its occupation by the French, the forest wealth of the country washed by the St. Lawrence River engaged the attention of the Home Governments, who saw therein vast resources available for their naval yards, and they drew from these forests large numbers of masts and spars and issued stringent regulations for the preservation of the standing oak.

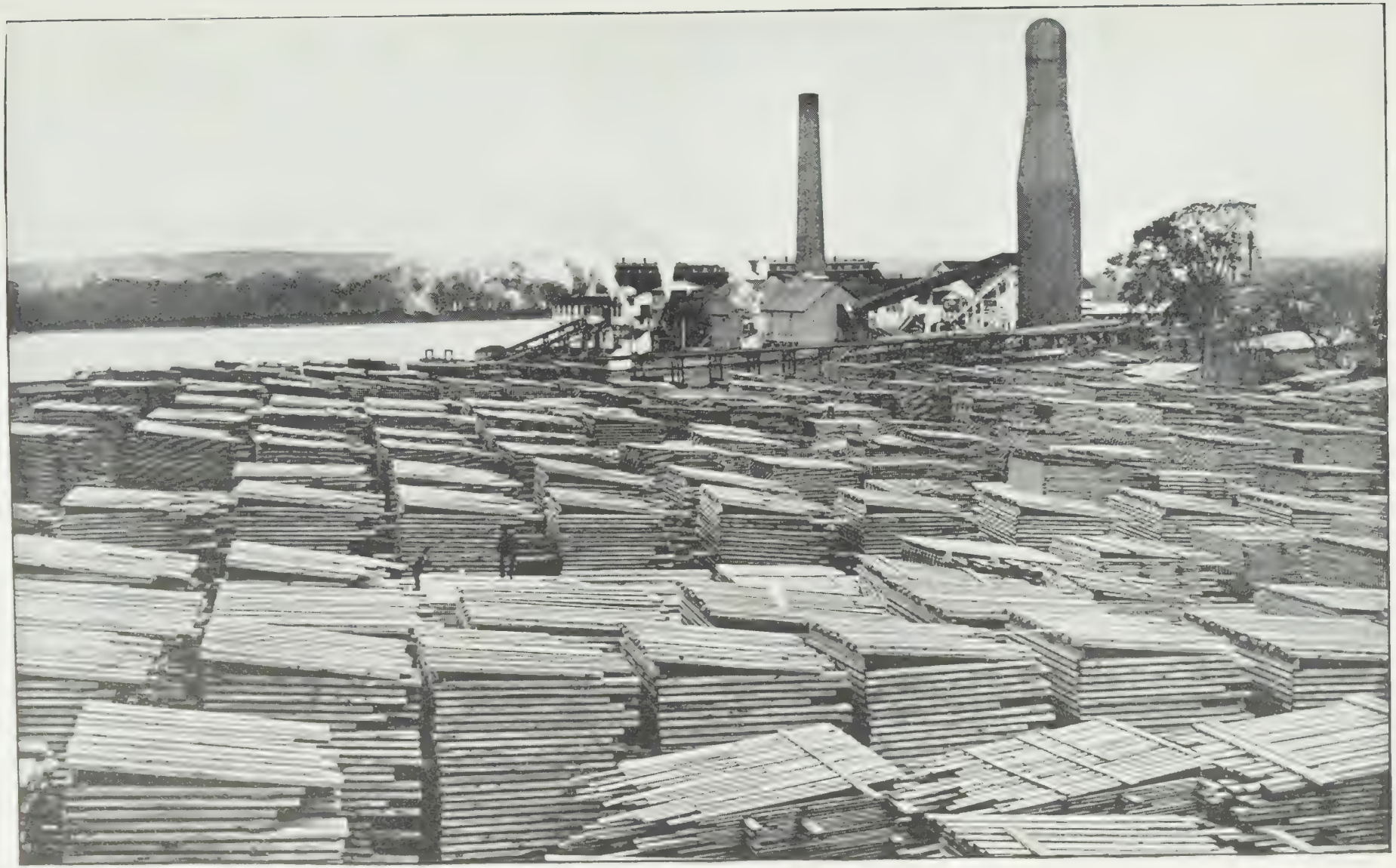
When the Demand Began.

When the country was ceded to the British Government but little attention was at first paid to its vast lumber supply, owing to the fact that almost the whole of the Baltic trade was carried in British bottoms, and that the lumber of Northern Europe provided an unfailing and profitable return freight for the shipping thus engaged. When, however, the troubles of the Napoleonic era began, and especially when the continental blockade was enforced, the lumber supplies of the Baltic became uncertain and insufficient. It was then that the lumber importers of Great Britain turned their attention to the North American colonies, and found there not only all the lumber they required, but occupation for the vast fleet of vessels lying unemployed in their harbors. Thus we find that, while in the year 1800 only some 2,600 loads, equal to 52 tons, of lumber reached Great Britain, in 1810 there were 125,300 loads, and in 1820 about 308,000 loads.

The British Demand.

When the war duties imposed on wood of European growth were gradually reduced it was feared that the Canadian product would no longer be able to hold its position in the English market, handicapped as it was by the short season of navigation and the heavy charges for

BIG TREES IN STANLEY PARK, VANCOUVER, BRITISH COLUMBIA.



LUMBER PILES AND MILLS, ROCKLAND, ONTARIO.

ocean freight and insurance then current. These fears, however, proved groundless, as the following figures show:—

1850	exported	to	the	United Kingdom	1,052,817 loads
1859	"	"	"	1,248,069	"
1872	"	"	"	1,211,772	"
1881	"	"	"	1,301,301	"
1891	"	"	"	1,044,641	"
1902	"	"	"	1,733,291	"

These figures represent years of normal trade; for the timber trade, like every other, has its periods of depression and inflation.

A noticeable feature in these returns is the steady decline in the quantity of square timber exported to England and a corresponding increase in the quantity of sawn or manufactured woods. Thus in the first year of Confederation (1867) the exports of timber from Canada formed 42 per cent. of the exported timber and manufactured wood. In 1902 it formed but 7 per cent. of the two classes.

This is entirely in favor of the Canadian limit-holder and his employees, the greater labor expended on the manufacture being beneficial both to the capital and to the labor of Canada.

United States.

During the early part of the century the export lumber trade of Canada was confined to the United Kingdom and the West Indies. A great change, however, has taken place. The pine lands of the North Eastern and Western States of the United States have become depleted and unable to meet the requirements of the trade in those States. The result is that the resources of Canada have been drawn upon to such an extent that during the period of Confederation (1868-1903) the exports to the United States form a total of 362 million dollars, an average of $10,000,000 a year, the average of the first ten years being $8,100,000,

and for the last $13,900,000; showing an increasing reliance upon the forest wealth of Canada.

Timber was long the leading article of Canada's export trade, but with the development of the country it now ranks after the products of the farm.

In Second Place.

Taking logs, lumber and other products of the forest, the total exports in 1868 amounted to $18,800,000, and in 1903 to $36,430,000. In the same years the exports of Canadian farm products increased from $19,700,000 to $114,500,000.

While the lumber interest does not occupy, relatively, the important position it did in the export trade of the country, it yet forms an important addition to the revenues and wealth of the country. In addition to the very large sums invested in timber limits, the capital invested in saw-mills and in other industries having wood for their chief raw material amounts to nearly $120,000,000, paying wages of over thirty million dollars a year and having an annual output of one hundred and twenty-five million dollars.

Canada's Forest Wealth.

The forest wealth of Canada is very great. Taken with exports, the per capita consumption is about 300 cubic feet a year. For many years the pine saw logs floated down to and past Ottawa on the Ottawa River have numbered nearly four million annually. The production in the census year 1901 of logs, pine, spruce and other, was 33,538,000 standard logs—each having 100 feet board measure. The total value of the raw products of the forest in the census year 1891 was over $80,000,000, or about $16 per head of the population.

Pulp and Paper.

Since that census there has been practically a revolution in the lumbering industry, especially in the relative value of spruce. The development of the demand for wood pulp has given to Canada's spruce trees a value that, consider-

LOGS AT C.P.R. BRIDGE, THREE RIVERS, QUEBEC.

LOGS AND SAW MILL, PIGEON RIVER LUMBER CO., PORT ARTHUR, ONTARIO.

ing the vast area over which the spruce extends, is largely beyond the value of the pine trees.

In pulp mills in 1891, Canada had invested about $2,800,000. In 1903 the amount invested was about $15,000,000. The total production in 1891 was about $1,000,000. In 1902 the total value of the output was $4,383,182. Several of the pulp mills have been transformed into paper making establishments. Of the thirty-five mills, nine manufacture sulphite pulp and four soda pulp, and four make both chemical and mechanical.

Pulp-Wood Supply.

The use of paper is increasing and the demand for pulp is growing in consequence. Canada has great areas of spruce and is destined to reap a golden harvest from the consumers of paper. Some idea of Canada's capacity to supply pulp may be obtained from a report upon a single district, that of Lake St. John in the Province of Quebec. The superintendent of forest rangers states that the area of the Lake St. John basin is about 30,000 square miles or 19,200,000 acres, of which only about 500,000 acres have been cleared, the remainder is covered with trees of which about 75 per cent. are spruce. A large proportion of these trees are of sufficient size to manufacture into lumber, but the spruce can be used with greater profit for making pulp. At the extremely low estimate of five cords of pulp-wood per acre there is growing at present on this area 100,000,000 cords of pulp-wood. 500,000 tons of pulp could be made there annually for an indefinite period. If the whole province were included in this estimate and an average nearer the true one used, the result would be beyond belief, yet it would be hardly possible to make an exaggerated statement.

In 1904 there were 39 pulp mills in Canada with an output of 275,000 tons of wood pulp. Of this 187,871 tons were mechanical, 84,808 sulphite and 2,940 tons soda pulp. The larger part was exported to the United States and Great Britain.

Contents of the Forests. Of the 340 species of trees found on the North American Continent, 123 grow in Canada, 94 occurring east of the Rocky Mountains and 29 on the Pacific coast.

The forests of Canada contain pine, spruce and hemlock, oak, elm, maple, beech, birch, butternut, hickory, basswood, cherry, etc. The area of distribution is large, nearly 38 per cent. of the whole area of Canada being forest; larger, therefore, than most of the countries of Europe, the forest area of France being not more than 18 per cent. of the whole area of France.

British Columbia is thought to possess the greatest compact reserve of timber in the world. The coast, as far north as Alaska, is heavily timbered, the forest line following the indents and river valleys and fringing the mountain sides. The wooded area is estimated at 285,000 square miles, and includes many kinds of timber. The Douglas spruce is the show tree of British Columbia and indeed of Canada.

Timbered Wilderness. In addition to the forest belt which is in the provinces of Nova Scotia, New Brunswick, Southern Quebec, Southern Ontario, Manitoba and British Columbia, there is the great Northern forest of Canada which stretches from the Straits of Belle-Isle round by the southern end of James Bay, to Alaska, a distance of about 4,000 miles, with a breadth of some 700 miles. Of this northern fringe, Dr. Robert Bell, Assistant Director of the Geological Survey, says:—

"This vast forest has everywhere the same characteristics. The trees, as a rule, are not large, and they consist essentially of the following nine species:—Black and white spruce, Banksian pine, larch, balsam fir, aspen, balsam poplar, canoe birch, bird cherry, white cedar, white and red pine; black ash and rowan occur sparingly in the southern part of this belt."

With such large areas of forest, Canadians in the past

PILE OF LOGS FOR PULP MAKING, LAURENTIDE PULP CO., P. QUEBEC.

LAURENTIDE PULP WORKS, GRAND MÉRE, P.Q.

SULPHITE PULP MILL, SAULT STE. MARIE, ONTARIO.

have given little attention to reproduction, believing that nature can hold her own against the forces of destruction. The general conclusion is that the forces of protection and reproduction are now practically as powerful as those of destruction.

The Forest Renewal.

Dr. Bell says:—"The dead trunks of the larger trees generally stand for many years after a great fire. In the summer following one of these conflagrations the blackened ground becomes partly covered by a growth of herbaceous plants, berry bushes and shoots from the roots and butts of deciduous trees which have retained some vitality, besides numerous small seedling trees. The huckleberry bushes, which are very common for the first few years, especially on rocky, silicious ground, bear abundant crops of fruit. They have sprung from large old roots, which are almost everywhere present in the thick woods, although their tops are quite inconspicuous, and bear few or no berries. In 15 or 20 years the ground is covered with poplars, birches, willows, etc., to a height of about thirty feet. By this time the dead trunks of the old brule have lost most of their branches and the smaller ones have fallen down. If we look under this growth, we shall discover many healthy young conifers overshadowed by the more rapidly growing deciduous trees. At the end of about fifty years the conifers are everywhere showing their heads in the form of sharp apices, their dark color contrasting strongly with the lighter shades of the other trees. In the race to get above the deciduous trees they develop tall trunks with the branches high up. In one hundred years the poplars are dying and falling down, and the canoe-birch has attained maturity and soon after shows signs of old age. Meantime the older conifers have overtopped the other trees, and given a new character to the general appearance of the forest. The younger conifers of various ages which have been springing up from seed every year take pos-

session of the ground left by the decay of the first occupants, and in about 150 years the forest has again become almost entirely coniferous. Such is the rotation of crops of trees which is perpetually going on in these regions. Perhaps one-third of the whole area consists of 'second growths' of less than 50 years, one-third of trees from 50 to 100 years old, while the remaining third may be 100 years and upwards."

The following are some of the principal commercial woods of the country:—

BASSWOOD—*Tilia Americana*, Linn.

The Basswood grows sparingly in New Brunswick, more abundantly in Quebec and attains its greatest size and is most abundant in the Province of Ontario. It is also found in eastern Manitoba. For commercial purposes, the greatest quantity is cut in that part of Ontario which lies between Lakes Ontario and Erie on the south and the main line of the Canadian Pacific Railway on the north, where it is often more than three feet in diameter and 100 feet in height. Basswood is used for a great variety of purposes, but the consumption of raw material is comparatively small when the vast number of articles into which it is manufactured is considered, as many of these are made from very thin veneers. The wood is white in colour, very light and soft and easily worked, but, though tough, it is not strong. It warps very little, not at all if well seasoned, and is on that account much used for sounding boards in pianos, and for organ stock. It enters largely into the manufacture of cheap furniture, the light parts of farming implements, carriage panels and bodies, boxes and coffins, where a light easily-worked wood is needed. Cut as veneer, it is used for fruit baskets and boxes, cloth-boards, band-boxes, cheese-boxes, and for a variety of similar purposes, and as "three-ply" for boxes and chair seats. It is the principal wood used in the manufacture of "wooden ware," and, turning easily, it is made into bowls, toys, etc. For build-

ing purposes it is not much used, except as clapboards and for light interior work. When drawn directly from the stump to the saw, the wood is very white, and, if well seasoned after being cut, it takes a very high polish.

BROAD-LEAVED MAPLE—*Acer macrophyllum*, Pursh.

The Broad-leaved Maple is common on Vancouver Island and along the coast in the southern part of British Columbia. It is the most valuable of the deciduous trees of the west coast. Though not as hard or as strong as the hard maple of the east, the wood is much better than that of the eastern soft maple. Much of it is "curly," which adds greatly to its value as cabinet-making material. It is used in the manufacture of furniture, mantels and handles and for interior finishing.

HARD MAPLE—SUGAR MAPLE—*Acer saccharinum*, Wang.

The Hard Maple is a common tree from Nova Scotia westward to Lake Superior, always on good soil. It reaches its greatest size in southwestern Ontario. Throughout its range it has always been esteemed the best material for firewood, and vast quantities of valuable timber are every year consumed in this way. In recent years small mills have been built in the settled portions of Canada in which it grows, and much of what was formerly used as firewood is now being cut into lumber for home consumption and for export. Where it is most abundant large factories have been established, and an annually increasing quantity of this and other hard woods being made into furniture and other manufactured articles. The wood is very hard, close-grained, tough and strong, and as it exhibits a great variety of colour and fibre arrangement, it is one of our best woods for veneering, panelling and high-class furniture.

The "bird's eye" and "curly" forms are found in infinite variety, and are greatly valued by the cabinet-

maker. Hard maple is used in Canada in the making of furniture and in cabinet work of all kinds, as flooring and for interior finishing, and in the manufacture of domestic utensils, handles, butchers' skewers, dumb-bells and Indian clubs, shoe-lasts and pegs, saddle-trees, mangle-rollers, and in many industries in which a hard, tough wood is desirable. It is also used for the keels of boats and ships, and is made into charcoal for smelting purposes. By the lumbermen it is used for handspikes and other implements used in river driving, and by the millwright for boxes and bearings, and for the teeth of gearing wheels. It is exported in the log, as square timber, deals and boards, and in the form of blocks and squares, as chair parts and in other semi-manufactured forms. It is from this tree that maple sugar is generally made.

SOFT MAPLE—RED MAPLE—*Acer rubrum*, Linn.

The Red Maple is common from the Atlantic to Lake Superior, ranging a little farther north than the the hard maple. The silver maple, *Acer dasycarpum* Ehrh. is not in this paper separated from *Acer rubrum* as these woods are commercially classed together as soft maple. The wood of the soft maple is soft and brittle, not comparable with that of hard maple, nor is it used for anything like so great a variety of purposes. Being soft and turning easily, many articles of domestic use, such as butter-making utensils, kitchen ware, etc., are made of this wood. It is also used for cabinet work and flooring.

BLACK CHERRY—*Prunus serotina*, Ehrh.

Not very abundant nor of large size in the Maritime Provinces nor Quebec but many fine trees are still standing in Ontario, in the southern part of which province it attains its greatest size in Canada. The quantity cut there is, however, not sufficient for home consumption and a good deal is imported for use in furniture factories and for interior finishing, for which purpose it is largely employed.

WHITE ASH—*Fraxinus Americana*, Linn.

The White Ash ranges from Nova Scotia to western Ontario, increasing in abundance and size until its western limit is reached. This is the finest and most useful of the ashes, being frequently found 100 feet in height and over three feet in diameter. Its wood is both strong and elastic, bending easily, which fits it for a great variety of uses. It enters largely into the manufacture of agricultural implements of all kinds as well as wagons, carriages, and sleighs. Though not as good as some other woods for that purpose, very fine handles of all kinds, whiffle-trees, neck-yokes, etc., are made from white ash, second growth wood being generally used. It is the principal wood used for oars. Like all other hard woods it is employed for flooring, furniture, and cabinet work. It is one of the most valuable Canadian woods, but is no longer abundant.

BLACK ASH—*Fraxinus sambucifolia*, Lam.

The Black Ash is more widely distributed than the white ash and is more abundant than the latter throughout its range. It is found from Anticosti west to eastern Manitoba in swamps and river bottoms. The wood is not so hard as that of the white ash, but it is tough and elastic and is, on that account, well suited for cooperage work and basket making. It is darker in color than the white ash and though used for the same purposes is not so highly valued.

The red ash and the green ash are not separated commercially from the two preceding species; the wood of the latter resembles that of the white ash while that of the former is more like the black ash. Both range further west than the other species, growing along the Assiniboine River and tributaries of Lakes Manitoba and Winnipegosis.

RED ELM—SLIPPERY ELM—*Ulmus fulva*, Michx.

The American or White Elm is of wide distribution in Canada, being found from the Maritime Provinces westward to rivers falling into Lake Winnipegosis in Manitoba. It increases in size and abundance until western Ontario is reached, where it is often found six feet in diameter and over 100 feet in height. It also grows to a large size in the valleys of the Winnipeg and the Red rivers. The wood of the white elm is very tough and difficult to split, and on this account it is much used for wagon hubs, blocks for all kinds of tackle and for gunwales, as the driving of bolts is less likely to split it than any of our other woods. It is heavy and strong but not durable. It is much employed in barrel, chair and wheel making and for a great variety of purposes when veneer-cut. As lumber it is rather coarse but is very largely used in the manufacture of furniture, coffins and flooring. Varying greatly in color and grain, it is employed to imitate other woods, nearly all the cigar boxes used in Canada being made of elm, while practically all coffins are made of either elm or basswood stained and polished to imitate other woods.

WHITE ELM—*Ulmus Americana*, Linn.

The Red Elm is not of much importance commercially in Canada and is not found anywhere in great quantity. It is more durable than the other elms, and is better suited than them for use as railway ties, fence-posts and rails. It is employed for much the same purposes as the other elms. The inner bark possess valuable medicinal qualities and is frequently prescribed in bad dysentery and diarrhoea cases; it is also used in the form of poultices.

ROCK ELM—CORK ELM—*Ulmus racemosa*, Thomas.

The Rock Elm grows in southern Quebec and west to Lake Superior, being best developed in southern Ontario, to which part of Canada it is, as a commercial wood, now

confined. It is much superior to the other elms, and for many purposes is unequalled by any other wood. It is tough, strong, elastic and very heavy. Its chief use is in the manufacture of agricultural implements, bicycle rims and wheel stock, and it is well suited for any purpose for which a wood that does not split easily is requisite. It is largely used in bridge and ship-building, and for heavy furniture. When highly polished the wood is very beautiful, and repays a greater expenditure of time in polishing than is usually given to elm.

SYCAMORE-BUTTONWOOD—*Platanus occidentalis*, Linn.

Confined in Canada to southwestern Ontario, where trees three and four feet in diameter and 80 feet in height are still numerous. The wood is heavy and hard, but not very strong. It is not a good wood for out-door work, but is extensively used in the manufacture of various specialties, such as bowls, butter trays, etc., as well as cigar boxes and barrel headings. Like other woods of inferior quality, it is also employed for a variety of purposes for which better material is not available.

HICKORY—*Carya alba*, Nutt.

The Hickory is, for commercial purposes, confined to Ontario, and it is only in the southwestern part of that province that it is found in any considerable quantity. The wood is very heavy, hard, tough, strong and elastic, though it is not durable when exposed to the weather, or when in contact with the soil. As fuel, it excels even hard maple. "Second-growth" hickory possesses in even greater degree than the ordinary wood the qualities that make it so valuable for fishing-rods, handles of all kinds, axles for light but strong vehicles, and for farming implements. The nuts of the hickory are the best grown in Canada. *Carya tomentosa*, Nutt., the white-heart hickory is included with the above species commercially,

and possesses the same qualities. The Bitternut, *Carya amara,* Nutt, is not quite so valuable as hickory, but is used for the same purposes.

RED BIRCH—CHERRY BIRCH—*Betula lenta,* Linn.

The Red Birch is an abundant tree from Nova Scotia westward to Lake Superior, the finest trees growing in the Province of Quebec north of the Ottawa and St. Lawrence rivers, and in central Ontario in the counties of Huron, Grey and Bruce, and in the districts of Nipissing, Algoma and Parry Sound, where it is often more than four feet in diameter. It is the best of birches for cabinet work and furniture, and is exported in great quantity for that purpose in the log, as square timber, deals, blocks and squares and as chair and other furniture stock. The wood is very hard, heavy and strong. The yellow birch, *Betula lutea,* Michx, is seldom separated, commercially, from the red birch, and is employed for the same purposes. The wood of the red birch is, however, rose-colored, often as dark as that of the cherry, in imitation of which it is frequently used. Good hubs are made from birch, and in the Maritime Provinces, where other suitable woods are not abundant, it is employed in the construction of wagon and cart frames. Turned boxes and similar articles are also made of this wood, as well as button-moulds. Red birch is very durable under water, and is used for piles and sluice work, and being little liable to the attacks of insects is valuable wood for ship-building purposes.

WHITE BIRCH—CANOE BIRCH—*Betula papyrifera,* Marsh.

The White Birch ranges from the Atlantic to the Pacific and in the north almost to the Barren Grounds. The finest trees are found in the valley of the St. Lawrence River and its western tributaries. The white birch is not so large as either the red or yellow birch nor is the wood so heavy. It is white, very hard and close-grained,

and is the principal wood used for spools, bobbins, turned boxes, bowls and other wooden-ware, shoe lasts and pegs. It is also employed in the manufacture of furniture and for interior finishing. In the more settled parts of Canada where good transport facilities are available the best white birch has already been utilized, but vast areas remote from railways yet remain to be exploited.

WHITE OAK—*Quercus alba*, Linn.

Though the true White Oak is *Quercus alba*, several other species are so classified commercially. The most important among these is the bur oak, *Quercus macrocarpa*, Mich. The true white oak is found in western Quebec and in Ontario as far west as Lake Huron. The bur oak has the same range as *Quercus alba*, but is also found in the Maritime Provinces and in the west throughout the wooded portions of Manitoba. The wood of both species is very heavy, hard, tough and durable, that of the bur oak being the most durable of any American oak when in contact with the soil, which makes it very valuable for use as fence posts, railway ties and piles. The wood of the white oak is also largely employed in ship-building, carriage and wagon-making and cooperage, the manufacture of agricultural implements and for cabinet and furniture work, flooring and interior finishing. Quarter-cut it exhibits a great variety of grain and coloring.

WESTERN WHITE OAK—*Quercus Garryana*, Douglas.

Though a few trees of this species grow on the mainland of British Columbia, it is practically confined to the southern part of Vancouver Island, the finest trees growing in the vicinity of the city of Victoria, where trees three or four feet in diameter from which logs from ten to twenty feet long can be obtained are not uncommon. The wood resembles that of English oak and is very beautiful when made up into furniture and cabinet work.

RED OAK—*Quercus rubra*, Linn.

The Red Oak extends from the Maritime Provinces westward to Lake Superior, reaching the greatest size in the Province of Ontario. The wood is inferior in quality to that of the white oak but is almost as hard, heavy and strong. It enters more largely than the white oak into cooperage work and, as with white oak, second growth wood is much used for handles of all kinds, wheel stock, axles, whiffle-trees, etc. For furniture, cabinet making, and interior finishing it is almost as valuable as the white oak. The bark is rich in tannin.

CHESTNUT—*Castanea dentata*, Marsh.

The Chestnut is confined to the southwestern part of the Province of Ontario, and is not even there in sufficient quantity to be of great importance commercially. The wood is neither strong nor flexible, but is durable and easily worked. In Canada it is employed chiefly in cabinet work, but is also well suited for use as railway ties and in heavy construction work.

BEECH—*Fagus ferruginea*, Aiton.

The Beech grows in the Maritime Provinces, Quebec and Ontario, the finest trees being found in the vicinity of Lake Huron. The wood varies greatly in color and grain, and is much employed in the manufacture of furniture and for flooring. The white-colored wood is said to be more tough and lasting than that of red color. Quarter-cut it is very beautiful. Its principal use is for tool handles, carpenters' planes, shoe-lasts, mallets and for various turned articles.

ASPEN POPLAR—*Populus tremuloides*, Michx.

The Aspen is the most widely distributed of Canadian trees, ranging from the Atlantic to the Pacific and north to the Barren Grounds. In some parts of Canada it is the only wood available for fence rails and firewood, and it furnishes the material for settlers' log houses in many

parts of the prairie region. Commercially the aspen is used chiefly in the manufacture of pulp, for which purpose it, like all the poplars, is well suited. At present spruce has, to some extent, driven poplar out of the market as a pulpwood, but the immense quantity growing throughout the Canadian sub-arctic forest will some day be utilized. The wood of the aspen is light and easily worked, and is used for woodenware, light barrels, such as those used for sugar and flour, and for crates and light boxes. It is also employed in the manufacture of furniture. The large-toothed aspen, *Populus grandidentata*, Michx., is employed for the same purposes as the aspen.

BALM OF GILEAD—BALSAM POPLAR—*Populus balsamifera*, Linn.

The range of the Balsam Poplar is much the same as that of the aspen. In the Northwest Territories it attains a great size, being there generally found in river valleys, where it is sometimes 150 feet in height and seven in diameter. On the islands and banks of the Pease and Athabasca Rivers it grows to a greater size than elsewhere in Canada, and large trees are found down the Mackenzie River as far north as the Arctic Circle. The wood is soft and not strong, but, with the cottonwood (*Populus monilifera*, Aiton), it is being used in increasing quantities instead of Whitewood, *Liriodendron Tulipifera*, Linn. It is employed in the manufacture of pulp, and for the same purpose as the other poplars. *Populus trichocarpa*, T. & G.—an abundant tree in British Columbia differs but little from the balsam poplar.

BLACK WALNUT—*Juglans nigra*, Linn.

Though once so abundant in southwestern Ontario, the old Black Walnut trees have almost all been cut down, though a few still remain, and younger trees which have been planted or preserved will soon augment the available supply for economic purposes, as the black wal-

nut is a rapid grower. Plantations of this tree have been made in various parts of Ontario and western Quebec, one of the finest being that owned by Sir Henry Joly de Lotbiniere. Walnut is not at present as popular as formerly as a cabinet wood and for interior finishing, lighter-coloured material being now in vogue, but veneering made from the dark heart-wood is still used in considerable quantity, and the falling off of the supply is doubtless the principal reason for the change in fashion. Walnut is too beautiful and valuable a wood to remain long unpopular, and the money and time invested in walnut plantations will be amply repaid in the future.

BUTTERNUT—*Juglans cinerea*, Linn.

The Butternut grows in southern New Brunswick and westward to the Georgian Bay. The wood is much lighter in color than the walnut and is not so heavy, hard or strong, but is very durable. It is easily worked and is chiefly used for cabinet work and interior finishing. The grain is somewhat like that of walnut, so that when stained a very good imitation of walnut may be made from butternut. It is a tree of rapid growth.

ARBOR VITAE—WHITE CEDAR—*Thuya occidentalis*, Linn.

Very rare in Nova Scotia, but abundant throughout New Brunswick, Quebec and Ontario. It grows to a considerable height, but seldom exceeds two feet in diameter. The wood is soft and not strong and has never been much used as lumber, but is unexcelled for shingles. The white cedar is chiefly used for fence-rails and posts, railway ties and telegraph and telephone poles. No other wood is used in any quantity for telephone poles in Ontario and Quebec. It is very durable in contact with the soil or when exposed to the weather.

GIANT ARBOR VITAE, RED CEDAR—*Thuya gigantea*, Nutt.

The Giant Arbor Vitae is next to the Douglas Fir in

importance in British Columbia, where it attains its greatest size on Vancouver Island, along the coast and in the lower parts of the rivers of the Coast Range. It is rarely found in the dry interior of British Columbia, but is abundant in the river valleys on the slopes of the Selkirk and Coast ranges. Though seldom found more than 150 feet in height, in circumference it rivals the Douglas fir, trees of from eight to ten feet in diameter not being rare, and they are occasionally found much larger.

It is chiefly used in the manufacture of shingles, for which purpose it is unequalled by any other wood. Formerly the shingles were made by hand, the wood splitting easily, but improved machinery has so lowered the cost of production, that comparatively few hand-made shingles are now used, though they are still in demand when a shingle of superior quality is desired. The wood of this tree takes a very brilliant polish and is well adapted for interior finishing of all kinds. So great is the variety of shading in the color of the wood that a large house may be finished in it without two rooms being alike. It is not only largely exported but is now being shipped in increasing quantities to Eastern Canada. In British Columbia it enters largely into the manufacture of doors and cabinet work of all kinds. Like all the cedars it lasts well underground, and on this account is much used in the form of telegraph poles and fence-posts. The immense canoes made by the west coast Indians are with very few exceptions made of this wood.

YELLOW CEDAR, YELLOW CYPRESS—*Thuya excelsa*, Bong.

The Yellow Cypress is not nearly so abundant in British Columbia as the arbor vitae, nor is its circumference so great. Its height is about the same as the arbor vitae—150 feet—and its average diameter about 4 feet, though occasional trees attain 5 feet. The Yellow Cypress is confined to the coast and the adjacent islands.

In the southern parts of British Columbia it is not found at sea-level, the finest trees growing at altitudes of from 1,000 feet to 2,500 feet. Though valuable for many purposes, the wood of the Yellow Cypress is not extensively used at present, the cost of transportation to the seaboard being too great. On the Queen Charlotte Islands it descends to the coast. When lower levels have been cleared of other trees the yellow cypress will be utilized. Its wood is very close, and, as the wood takes a very high polish, it is greatly valued for interior finishing and for the manufacture of furniture. It commands a higher price than either Douglas fir or arbor vitae. The natives along the northern coast of British Columbia make many articles for domestic use from this wood.

WHITE PINE—*Pinus Strobus*, Linn.

The White Pine is by far the most valuable of Canadian trees, and, notwithstanding the reckless waste that characterized lumbering operations until very recently, there still remains in Canada an immense quantity of growing timber from which vast quantities of lumber will be made.

The white pine ranges from the Maritime Provinces westward through Ontario and Quebec to the extreme eastern edge of Manitoba. On the north but a few trees are found beyond the height-of-land separating the Hudson Bay and St. Lawrence watersheds. Large trees are not common in the eastern provinces, from two to two and one half feet diameter being there considered a good-sized tree. In the Ottawa valley, however, and on streams running into Lake Huron, trees three and four feet in diameter are common, while larger trees are not rare. White pine is exported principally in the form of square timber, deals and boards. Its chief uses are in construction work of all kinds, and as the slabs and edgings are made into shingles and laths there is now little waste of material. The wood is light, soft and not

strong, but it is suited for a great variety of purposes as it easily worked and free from resin.

WESTERN WHITE PINE— *Pinus monticola*, Dougl.

None of the western pines are found in quantity near the coast and so far they have been utilized for local purposes only. The best of these is *Pinus monticola*, Douglas, which is little inferior to the white pine of the east. It is found in the interior of Vancouver Island and is abundant in the southern parts of the Coast Range where there is heavy rain-fall. In the Selkirk Mountains it is not very common but attains a considerable size on the mountain slopes. The wood is used for the same purposes as the eastern white pine.

RED PINE—*Pinus resinosa*, Aiton.

The Red Pine is not so widely distributed as the white pine, nor is it so abundant in the areas on which it grows. It is neither so tall nor so large a tree as the white pine. Commercially it is frequently not separated from it, though the wood of the two trees differs materially, the red pine being harder and stronger than the white pine, much more elastic and containing a great deal of resin. The red pine has very wide sap-wood which adds to its value as material for heavy construction work, piles, etc. It is used for the same purposes as white pine, to which it was formerly preferred and has again in recent years reached a value more nearly approaching that of white pine.

SCRUB PINE—JACK PINE—*Pinus Banksiana*, Lam.

Jack Pine is found from the Maritime Provinces north-westerly to the foot-hills of the Rocky Mountains, where it is replaced by *P. Murrayana*. It increases in height and girth as one travels westward, the finest trees being found between northern Manitoba and the Athabasca River, in which district great areas are covered with large trees. In Nova Scotia and New Brunswick

it is small and of no value. Elsewhere in Canada it is not much used at present except for railway ties and locally where other pine is not to be had. As a timber for use in mines and for heavy construction work generally its good qualities are not yet appreciated. Recent experiments have proved that good pulp can be made from it.

BLACK PINE—*Pinus Murrayana*, Balfour.

The Black Pine replaces the preceding species on the eastern slopes of the Rocky Mountains. It is abundant in the northern part of the interior plateau of British Columbia, where it covers great areas. In the southern part of the province it is most abundant at altitudes ranging between 3,000 feet and 4,000 feet. Though estimated of little value where other conifers grow, except for railway ties and firewood, it is much used for mine props and other construction work in the mining districts of British Columbia. It is admirably suited for this purpose, as the wood is very tough, and when not exposed to the weather does not easily decay. It is said to make excellent charcoal.

BLACK SPRUCE—*Pinus nigra*, Link.

The range of the Black Spruce is much the same as that of the white spruce, the former, as a rule, growing in damp situations while the latter prefers drier, well-drained soil. The two trees are not separated commercially and with them is included the red spruce of eastern Canada. The characteristics of these spruces are almost identical and the woods are used for the same purposes. The black spruce, to which the red spruce is nearly allied, is perhaps best suited for use as spars and masts. In the eastern provinces spruce is the chief wood used in housebuilding and for flooring. Both black and white spruce have been found to increase in value as pulpwoods the further north they grow.

WHITE SPRUCE—*Pinus alba*, Link.

Within the past few years the demand for pulp-wood has so increased that the spruces are rapidly becoming the most important trees in Canada. The value of the growing timber is probably already as great as that of all other trees combined. The white spruce ranges from Nova Scotia, northwestward to within twenty miles of the Arctic Ocean, near the mouth of the Mackenzie River, and with the black spruce it forms a great part of the sub-arctic forest which extends from Labrador across the continent. The wood is tougher, stronger and more elastic than that of pine. It is now more used than formerly as lumber as well as very largely as railway ties, fence posts, piles and telegraph poles.

ENGELMAN'S SPRUCE—*Picea Engelmanni*, Engel.

This characteristic spruce of the Rocky and Selkirk mountains is the most useful tree growing in the interior for trestle work and for heavy construction work generally. In the valley of the Columbia it is often more than 150 feet in height and four feet in diameter. The wood is very like that of the Black and White spruces and may be used for the same purposes. This was the chief wood used in the construction of the Canadian Pacific Railway from the Rocky Mountains westward.

MENZIE'S SPRUCE—SITKA SPRUCE—*Picea Sitchensis*, Carr.

This spruce grows chiefly in the immediate vicinity of the coast, ranging in British Columbia from the International Boundary north to Alaska. In the southern part of the province it grows scattered among other trees, but in the north it is relatively much more abundant, growing sometimes in large clumps. Though averaging less in diameter than the Douglas fir occasional trees of great size are found; those cut for lumber are, however, seldom more than five or six feet in diameter. No

other tree on the West Coast is used for such varied purposes, and as it is easily worked up by machinery there is a great demand for it in the manufacture of doors, window sashes, boxes, shelving and interior finishing. The wood is very white, is elastic and bends with the grain without splitting, so that it is much used in boat building, the making of light oars, staves, woodenware, etc. It resists decay for a long time, and, like the Douglas fir, is not attacked by insects. The chief value of the Sitka spruce will, in the near future, be in the manufacture of pulp for which purpose it is not excelled by any other tree. As soon as pulp mills are established in the vicinity of the large saw mills the immense waste entailed by the present method of sawing dimension lumber in British Columbia will be obviated.

HEMLOCK—*Tsuga Canadensis*, Carr.

The Hemlock grows in the Maritime Provinces, Quebec and Ontario. Though little inferior to white pine as rough lumber, a prejudice has for a long time existed against this wood which is only now dying out. As coarse lumber, it to-day commands almost as high a price as pine. It is one of our best woods for wharves and docks and great quantities are used annually for piles. The bark of the hemlock is that chiefly used in Canada and the eastern United States for tanning purposes.

WESTERN HEMLOCK—*Tsuga Mertensiana*, Carr.

The Hemlock is abundant along the whole coast of British Columbia and in the interior of the province, wherever there is sufficient rainfall. Along the line of the Canadian Pacific Railway, in the Selkirk Mountains, it is very abundant, but seldom over 150 feet in height and three in diameter. On the coast it is much larger, averaging from 4 to 6 feet in diameter. The abundance of other wood of better quality has prevented hemlock from coming into general use, and the same prejudice

exists in British Columbia against the western tree, that prevailed until very recently against hemlock in eastern Canada. Though its grain is coarse, western hemlock is, for many purposes, just as serviceable as other woods which cost more. Its bark is rich in tannin, but it is too thin to be extensively used while there is such an abundance of Douglas Fir in the same region.

DOUGLAS FIR, "OREGON PINE," RED PINE, YELLOW FIR—*Pseudotsuga Douglasii*, Carr.

This is the most abundant, as it is the most valuable tree in British Columbia. Its range on the mainland is from the International Boundary north to the Skeena River, in latitude 54 deg. on the coast, and in the Rocky Mountains from the International Boundary north to latitude 55 deg., though its northern and northeastern limits are not well defined. It is not found in the Queen Charlotte Islands. It attains its greatest size on Vancouver Island or along the shores and in river valleys near the coast on the mainland. There, trees 300 feet in height are not rare, the average height of those felled for lumber being over 150 feet. Trees of a greater diameter than seven feet are rarely cut, though those of eight, ten or eleven feet in diameter are not rare.

The fact that the largest trees are found near the coast greatly facilitates the transport of the logs from the woods to the mill, and, as the majority of the mills are so situated that the largest ships may load within a few yards of the saws, the cost per 1,000 feet of handling Douglas fir and other west-coast lumber is small.

The average cut of Douglas fir in British Columbia is over 50,000 feet per acre, though in some instances more than 500,000 feet have been cut on a single acre, no trees of less than two feet or more than five in diameter, being used. Douglas fir is chiefly valuable for structural purposes, being largely employed in ship-building, bridge-work and the construction of wharves. It is ex-

ported as dimension timber, lumber, spars, masts and piles. Locally it is used for construction work of all kinds; fencing and railway ties, and in the manufacture of furniture. Its durability, when excluded from the air, adds greatly to its value for pile-work in the construction of bridges and wharves. The bark of the Douglas fir is largely employed in tanning.

BALSAM—*Abies balsamea*, Miller.

The Balsam is a common tree in the Eastern Provinces, Ontario and Quebec, and is found in the sub-arctic forest northwesterly to the Athabasca River. The wood is very light and soft and is not durable in contact with the soil. It is to some extent used as common lumber and on account of its lightness is frequently made into box-shooks. Though not one of the best pulp-woods, it is and will continue to be cut with other trees and used for that purpose.

WESTERN WHITE FIR—*Abies grandis*, Loud.

The Western White Fir is confined to the vicinity of the Pacific Coast and though it grows to great size the wood is very soft and not suited for any purpose for which strength is requisite. It is now used to some extent for boxes and light barrels and will in the future be utilized in the manufacture of pulp.

TAMARAC—BLACK LARCH—*Larix Americana*, Michx.

The Larch ranges from Nova Scotia northwesterly to the Peace River. The wood is hard, heavy and very strong. It is not much used as lumber, but is largely employed as railway ties, fence posts, telegraph poles and as knees for ships, and in fact for ship-building purposes generally. It is well adapted for use as joists, scaffold poles and rafters as comparatively small timber is capable of supporting a great weight. The Western Larch, *Larix occidentalis*, and the Mountain Larch, *Larix*

Lyallii, replace *L. Americana* in the Rocky Mountains and British Columbia, where they are used for lumber, telegraph poles, railway ties and mine props.

XIX.

WATER POWERS.

Canada has a great asset in the falls and rapids of the streams. There are immense sources of power. They are already furnishing the motive power for manufactories, taking the place of coal. It is impossible to state what is the extent of the power which can be developed from the streams. No comprehensive examination of the various falls has ever been made.

However, a good deal is known of them, for men have observed the "white water" stretches in Canadian streams from more than one point of view.

Brebeuf, one of the early Jesuit missionaries, leaving Three Rivers for Lake Huron by way of the Ottawa River, relates that during his journey he had to carry his canoe over thirty-five portages because of the rapids and cataracts encountered.

The hydrographic condition of the rivers the burly Jesuit traversed, in his bare feet, nearly three hundred years ago, remains the same to-day as then, and in each of these rapids and cataracts, which were a source of annoyance to the zealous pioneer, there is to-day a reserve of horse power calculated to delight the manufacturer.

Thos. C. Keefer, C.E., C.M.G., in the course of a presidential address before the Royal Society of Canada, says:—"An examination of any good map of our broad Dominion, reveals, as its most striking feature, an extraordinary wealthy and remarkably uninterrupted succession of lakes and rivers, suggestive of ample rainfall, the first great requisite in the occupation of any coun-

try. Over a length of several thousand miles, between Labrador and Alaska, and over a width of several hundred miles, there is an almost continuous distribution of lakes, lakelets, and rivers; the lakes of varied outlines, dimensions and elevations above sea level, and many possessing facilities for the storage of their flood waters. In many places the outlet from the lake or the connection between a chain of lakes is a narrow cleft in rock where an inexpensive dam will hold back the water supplied by the winter's accumulation of snow."

Tumultuous Streams.

With the exception of our prairie region, the rivers of Canada differ from those draining the western and central States of the United States of North America, in that they are not naturally navigable from their mouths or above tidal influence to any considerable extent, except in detached sections. The great United States rivers, the Mississippi, the Missouri and the Ohio are navigable for thousands of miles and are, therefore, without water power. They flow upon a nearly uniform grade of a few inches per mile, while the St. Lawrence and its tributaries, and in fact all the great rivers of Canada, east and west, are interrupted by rapids, chutes, and cataracts, affording a great variety, quantity and quality of water power.

From the Straits of Belle Isle to Montreal, and thence ascending the St. Lawrence, the tributaries of the St. Lawrence and of the Ottawa descend, through the Laurentian region, from elevations of 1,000 to 1,800 feet above tide. In many cases they bring their principal cataracts very near their outfall, notably in the case of the famous falls of Montmorency, which, leaping directly into the St. Lawrence from a height of 250 feet are utilized to supply power to a cotton mill not far from their base, and to light the streets and drive the tram cars of Quebec city ten miles distant.

COTTON MILL BELOW MONTMORENCY FALLS, P.Q.

A Centre of Power.

A short time ago an examination was made by the Ottawa Board of Trade into the resources of the region tributary to Ottawa. Estimates were obtained from surveyors, engineers, mill owners, and others possessing full knowledge. It was found that within a radius of fifty miles there was an available power of water equal to nearly 900,000 horse power, the Ottawa supplying 664,000 horse power, and its tributaries 226,225 horse power; those on the Ontario side contributing 40,000 horse power, and those on the Quebec side 186,225.

This estimate is based upon a low average of water obtainable throughout the year.

The Value.

At the sources of the twelve or fourteen rivers, which together aggregate the 900,000 horse power mentioned, are great lakes that can be converted, by the construction of retaining dams, into immense reservoirs, by means of which the power can be increased. Estimating the cost of electrical energy generated by steam on a basis of $25 per horse power, per annum, the employment of a force of 900,000 horses would involve an expenditure of $22,500,000. Estimating the cost of the same power evolved by water at $10 yearly the saving effected by the employment of the falls and rapids around Ottawa would be $14,500,000.

This power is all within such easy distance of the federal capital that it can be centred in Ottawa over a comparatively small number of miles of wire with a loss of only 8 to 10 per cent. in efficiency.

Mr. Surtees, C.E., who has investigated this question for the Ottawa River, gives the following information of the capacity of this river and its tributaries to supply power:—

At Great Chaudiere, Ottawa City (not in use), 35,000 horse power; Little Chaudiere, 25,000; Deschenes and Britannia, 15,000; Chats Falls, 141,000; Portage du Fort,

49,000; Mountain Chute, 62,000; Grand Calumet, 186,000; Coulonge River, 24,120; Black River, 21,000.

Mississippi River—At Galetta, 1,800 horse power; Pakenham, 900; Blackeney, 1,080; Rosamond's Rapids, 720; Almonte, 3,000; Appleton, 540; Carleton Place, 1,000; Innisville, 540.

Madawaska River—Arnprior Rapids, 1,400 horse power; Burnstown, 1,400; Springton Rapids, 1,120; Calabogne Lake, 3,640; Madawaska High Falls, 10,360.

Bonnechere River—Castleford Rapids, 1,129 horse power; Renfrew and Douglas, 2,000; Quyon River, 80

Gatineau River—Farmer's Rapids, 24,500 horse power; Chelsea Mills, 47,790; Eaton's Chute, 24,508; Cascades, 14,000; Wakefield, 12,000; Paugan Falls, 73,500; Peche, 375; Petite Nation River, 1,600; Blanche River, 1,600; Priests Creek, 240; Little Blanche River, 250; Clay Creek, 120.

Riviere du Lievre—Buckingham, 9,000 horse power; Rheaume Falls, 4,000; Dufferin Falls, 12,500; Upper Falls, 12,500; Little Rapids, 500; Cascades, 2,000; High Falls, 36,000.

These figures give a total of 589,320 horse power above the city of Ottawa, and 269,683 horse power below the city, all of which is at present unused—the total in use being 58,400, giving a grand total of 917,403 horse power.

This estimate, as has been stated, is for water power within a radius of 50 miles of the city.

Million and a Half.

Beyond that no detailed estimate has been provided. Mr. Andrew Bell has estimated the aggregate water power available between Ottawa and Mattawa (200 miles) at 1,476,000 horse power.

The engineers of the projected Montreal and Ottawa and Georgian Bay Canal estimate the water power developed along the route of the canal at 700,000 horse power.

FACTORY OF THE ONTARIO SUGAR CO., BERLIN, ONTARIO.

On Sturgeon River, emptying into Nipissing Lake, and, therefore, tributary to the projected canal, the power available at Sturgeon Falls, Smoky Falls, and one or two other points, is approximately 50,000 horse power, part of it being utilized by the Imperial Paper Company, already mentioned.

On the Montreal River there is a 150 feet fall within the first three miles, and a 180 feet fall in the distance to Lake Temagami.

All this immense reservoir of power is included in 300 miles of a river which is over 600 miles long.

Power From a Canal.

Still further, the building of the dams proposed in connection with the Montreal, Ottawa and Georgian Bay Canal, it is calculated will increase the power between Sturgeon Falls and Montreal by 500,000 horse power—which is equal to the amount developed on the United States side of Niagara Falls.

Another Locality.

The deep and sombre River Saguenay acts as the drain of Lake St. John. This lake is fed by many rivers and streams. These are fine reservoirs of power. Beginning on the east side the Peribonka River is navigable for a dozen miles from the lake. Then come the Grand Chutes, For five or six miles the waters of the Peribonka rush through these chutes by a series of water falls capable of supplying 300,000 horse power, which can all be harnessed to do the world's work at an expenditure of a comparatively small sum of money—comparatively, that is to the cost required to secure the force utilized at Niagara Falls of but one-sixth of the horse power capable of being employed in the falls of Peribonka River.

The Mistassini River is another of the feeders of Lake St. John. On it, within 24 miles from the lake, there are two falls not far from each other. These taken together can supply a force of 45,000 horse power.

One of the affluents of the Mistassini River is the

Mistassibi. Its waters pass into the parent river by a succession of cascades whose collective force is estimated at 75,000 horse power.

Another of the tributaries of the Mistassini River is the River of Rats. The waters of this river mingle with those of the Mistassini by means of two cascades of 30 feet and a water fall of 60 feet; estimated to be able to supply a force of 22,000 horse power.

Perhaps the largest tributary of the Mistassini River is the Assiemska, whose rapids and cascades are of such a character as to warrant the statement that several thousands of horse power are there waiting to be set to work.

It is safe to say that there are, north and east of Lake St. John, within a sweep of 20 miles, not less than 150,000 horse power.

100,000 Horse Power.

The River Chamouchouan, which is considered to be the upper part of the Saguenay River, falls into Lake St. John, south of the Mistassini. It can contribute as its share of the water power of the favored region, not less than 100,000 horse power, supplied by several cascades, and especially by the falls of the Chaudiere, which have a height of 120 feet.

The River Ouiatchouan has a length of 60 miles and in reaching the Lake St. John widens into several lakes, of which the most important is the Lac des Commissaires, which is a lacustrine expansion of 21 miles in length. At a couple of miles from its mouth the river has a fall of 230 feet high, capable of providing a force of 33,000 horse power.

The Metabetchouan, in a distance of 80 miles has a descent of 225 feet—the greater portion of which is accomplished by means of cascades and rapids—within a distance of 4 miles.

Here, then, in the single region of which the basin of Lake St. John is the great water reservoir, are rivers

and streams having over 700,000 horse power, capable of being utilized for manufacturing purposes. This, it is stated, is a power much in excess of that which could be supplied by the rivers of Norway and Sweden.

These are but two examples of scores that might be adduced to show the great capacity of the rivers and streams of Canada for the production of water power easily utilized in manufacture.

The St. Lawrence River and all its tributary rivers, the St. John, Miramichi and Restigouche Rivers and their tributaries, the mountain-fed streams and rivers of British Columbia and the numerous water privileges of Nova Scotia, testify to the exceeding abundance of water courses specially fitted for the production of power in all those portions of Canada.

St. Lawrence Power.

The Falls of Niagara have a theoretical force equal to seven million horse power, of which one-half belongs to Canada. This means several thousands of available horse power capable of distribution over a large area of the adjacent country. It has been estimated that the St. Lawrence River, from source to end, has a capacity of ten million horse power.

The canals of Canada have an approximate development of 20,000 H.P., with the capabilities of developing a greater amount of power.

XV.

MANUFACTURES.

The manufactories of Canada are increasing rapidly in number, size and importance. The rapid growth of the agricultural population, particularly in the West, has created a large demand for manufactured goods. The capital and energy of the East is now largely devoted to meeting this demand. Canada has great natural ad-

vantages for the production of many manufactured articles. Therefore, the home market is not exclusively cultivated. An entrance has been made into the foreign field.

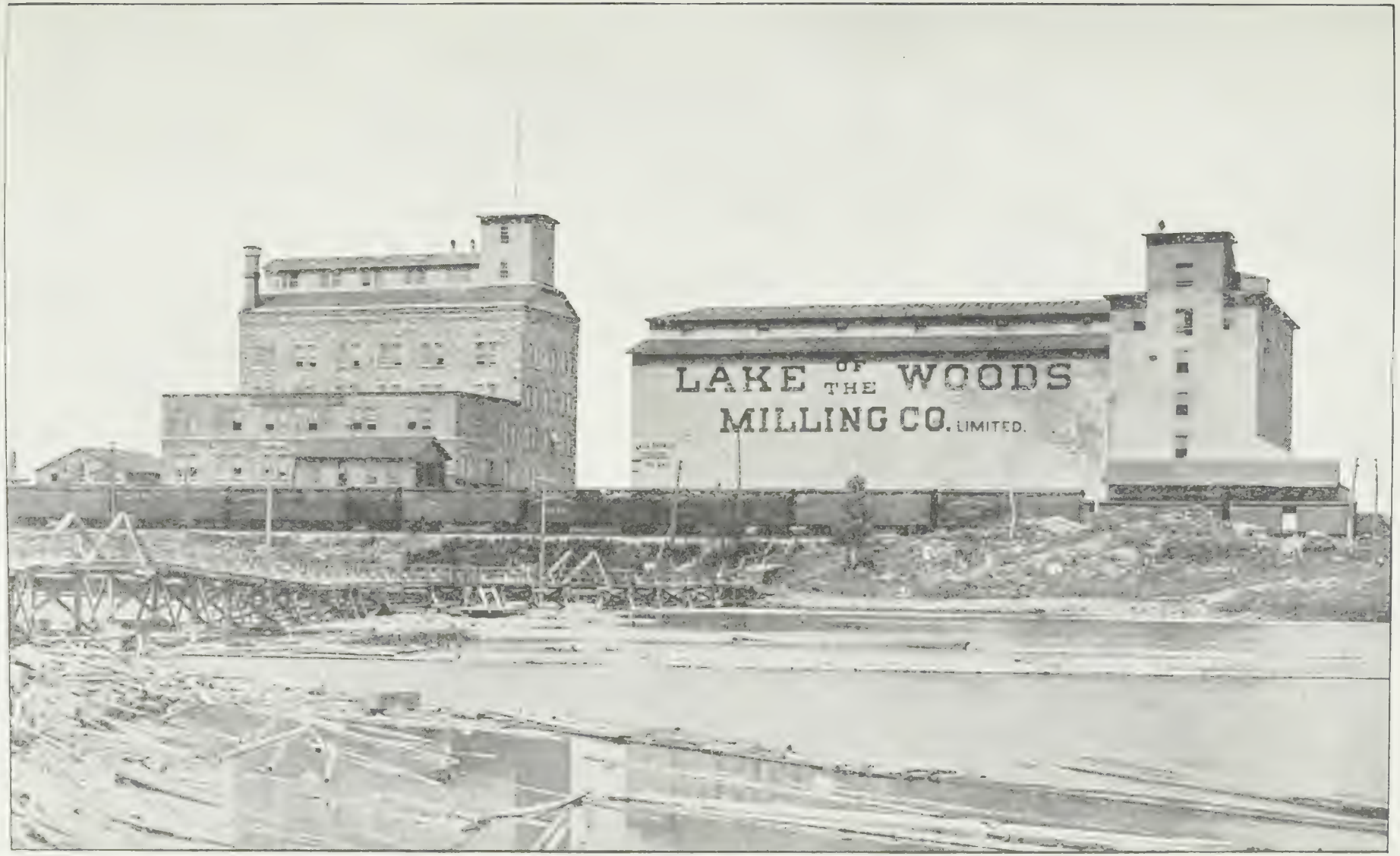
The latest figures available are contained in the 1901 census. Since that time the number of manufacturing enterprises established has been phenomenal. These include car works, locomotive works, rail mills, implement factories, iron works of all sorts and establishments of all descriptions.

In the Beginning. When Canada presented herself before the world in the Paris Exhibition of 1855 she could only tell of 28 or 30 different manufactures established in the country. There were saw mills, grist mills, carding mills, woollen mills, distilleries, tanneries, breweries and foundries of small size and number. The others were still fewer and smaller. The best that the Hand Book of 1855 could say was that the most important of the manufactures was that of shipbuilding, the number of ships built in Quebec city, the chief seat of the industry, having been 48 in 1853, valued at $2,500,000; that the St. Maurice River iron works employed 300 hands; that considerable progress had been made in the development of manufactures requiring iron and steel for their bases, such as locomotives, carriages, edge tools, agricultural implements, etc.; that cotton manufacture was very small; that woollens were made on a somewhat extensive scale; that 1,631 saw mills were producing 722,600,000 feet of lumber per annum, and that grist mills numbered under 1,200 requiring a capital of $5,000,000.

The whole industrial class numbered a little over 71,000.

By the year 1891 the 30 different manufactures of 1851 had expanded into 300, and the number of the industrial class into 370,000.

ROYAL MILLS, MONTREAL, QUEBEC.



MILL AND ELEVATOR OF THE LAKE OF THE WOODS MILLING CO., KEEWATIN.

BLACK CREEK CHEESE FACTORY, ONTARIO.

The census returns of 1891 show that the number of manufacturing and mechanical establishments increased from 49,722 in 1881 to 75,968 in 1891, an increase of 53 per cent.; that the capital invested increased from $164,958,000 to $354,621,000, an increase of 115 per cent., and that the value of the output increased from $309,700,000 to $476,200,000, an increase of 53 per cent., notwithstanding the very great drop in prices between 1881 and 1891. **Story of the Census.**

The census of 1901 was taken on a different plan, only those industrial establishments employing five or more hands being taken by the agents of the department in charge of the census. The result of a comparison on this basis is that, while the number of establishments having five hands and over shows, as compared with 1891, a decrease, the total annual output of finished material shows an increase of $94,216,092, the figures being $453,298,728 in 1901 and $359,082,636 in 1891.

As is natural in a country so largely a wooded country, the manufacturing industries connected with wood form a large proportion of the total. The capital invested in these amounted to 28 per cent. of the total capital invested in manufacturing in 1891, and to 25 per cent. in 1901. **Wood Manufactures.**

The development of manufactures connected with foods is also a natural development.

The only return in 1855 in this connection was that of grist mills, with a capital of $5,000,000. Bakeries were few and far between, the bread used being mostly home made.

There were no cheese factories, and but little cheese was made in the homes of Canada, the census returns of 1851 giving a total of 4,182,000 pounds as the year's make of home-made. Much of the cheese consumed was imported from the United States. The factory-made **The Cheese Industry.**

article was added to the home-made, and the total of the two in 1890 was 114,982,000 pounds, or nearly thirty times the amount of 1851. In 1901 the joint produce was 227,905,250 pounds, or fifty-seven times the produce of 1851. From being dependent on the United States for its cheese, Canada is now the largest exporter among the world's countries, our exports in 1904 having been 233,000,000 pounds.

In 1891 the total capital invested in manufactures having vegetable and animal foods for their bases was $42,700,000, flour and grist mills having increased their capital from the amount already given for 1851 to over $23,000,000. In 1901 the capital employed in these industries, taking only establishments with five hands and over, was over 50 million dollars.

Preserving Business.

The canning industries are of comparatively recent growth. Still, in 1891 the capital invested in canning industries was about $9,000,000. This amount has been largely increased since then.

In printing and publishing, bank note engraving and the like, the capital invested in 1891 amounted to $10,500,000; in carriage making to nearly $11,000,000; in drinks and stimulants, to nearly $27,500,000; breweries having a capital of $8,533,000, and sugar refineries nearly $6,000,000. The census of 1901, with the limitation already mentioned, showed an increase of capital invested in these industries of 46 per cent.

There was a great growth in the number of establishments for the preparation of aerated waters, the value of the output for the year being over three-quarters of a million dollars. In the manufacture of tobacco and cigars, etc., the sum of over 7 million dollars was invested in 1901.

In the manufacture of leather, boots and shoes, harness, there has been a great development, the capital employed in 1891 being returned at nearly $22,000,000.

Our largest cities and towns had been lighted with gas some years before the Paris Exhibition of 1855 took place, but the use of gas was only beginning to become general. Of course the application of electricity was unknown. By the census of 1891 the capital invested in lighting appliances was $21,335,000, an increase during the decennial period 1881-91 of $13,500,000. Returns for year 1903 show that the country has over 50 million dollars invested in electric light and power plants.

Textile Manufactures.

In the manufacture of textile fabrics and dress materials, Canada could not do very much in the earlier exhibitions. Since then there has been great improvement, and the total capital invested in 1900 in these branches was $55,744,000, of which $18,300,000 was in cotton mills and $10,500,000 in woollen mills.

Divided somewhat empirically into classes, the census of 1901 gives the following results (factories employing five hands and upwards) :—

Articles.	Capital.	Wage Earners.	Value of Product.
Arms and ammunition ..	1,675,675	611	1,054,000
Books, printing, &c.	17,235,971	10,724	13,796,151
Carriages, &c.....	14,941,702	14,453	19,420,999
Chemicals, &c.	4,607,778	1,837	5,017,750
Drinks and stimulants..	39,340,286	11,275	36,034,328
Fibrous material—Twine, &c.	3,901,905	2,621	4,211,806
Foods, vegetable — Grist mills, &c.	24,781,251	15,705	47,492,461
Foods, animal — Factory cheese, &c.	13,896,363	18,030	31,951,369
Furniture, houses and buildings	22,409,724	17,163	24,988,932
Gold and silver	2,260,430	1,544	2,491,622
Leather, boots and shoes, &c.	21,558,804	10,332	34,853,010

Articles.	Capital.	Wage Earners.	Value of Product.
Lighting — Gas, electric light	27,632,868	4,810	11,317,374
Machines, tools, &c.	78,032,672	39,076	61,879,939
Matters, animal — Brush and broom works, &c	3,085,130	1,364	3,325,159
Matters, vegetable—Boxes, carboard, &c., log products, &c.	84,492,298	66,650	72,203,699
Mathematical instruments	115,700	140	199,750
Musical instruments.....	4,290,847	2,669	3,380,727
Ships and boats	3,297,914	2,587	2,043,668
Stone, clay and glass	7,117,245	9,370	5,820,544
Textile fabrics and dress.	55,743,839	62,588	61,822,170
Miscellaneous	10,945,213	4,351	9,993,261

The above enumeration is not taken in on the same basis as is the census of the United States. It is limited to industrial establishments having five hands or more.

Number of Factories

The factory life of the Dominion includes over 11,000 establishments, employing 306,900 wage earners. The average annual wage paid in 1900 was $287 per wage earner.

In the main the development of our manufacturing and mechanical industries has followed the lines suggested by our development of the extractive industries and by the growing wealth of the country.

XVI.

THE CANALS.

The rivers and lakes of Canada provide the great natural means of communication. Before the advent of the white man the canoes of the Indians enabled them to

pass through the forest wilderness with little difficulty. Only where streams were blocked by rapids was it necessary for the bronze traveller to set his foot on shore. Then when canoe and its contents had been carried or portaged about the obstruction the journey would be continued. Thousands of miles could be thus traversed afloat through the heart of the continent. The first French adopted the travelling plan of the Indians. The canoe was their means of conveyance on trading, exploring and missionary journeys. La Salle made a journey by water from Montreal to the Gulf of Mexico, traversing the waters of the St. Lawrence and Ottawa Rivers, the Great Lakes and the Mississippi. After reaching the Gulf of Mexico he retraced his way by the same route.

The first settlement was entirely along the streams, which afforded the pioneers means of communication.

Genesis of the Canal.

As settlement increased the high roads of the country were opened and improved. A regular system was adopted for the purpose, and for years the river and the roads were the only means of communication. Soon the idea of improving the river by means of canals took root. Nature had rendered the St. Lawrence navigable to Quebec for ships of the largest size. Vessels of 500 or 600 tons burden could go as far as Montreal, but beyond that were the St. Louis Rapids, which put an end to further progress. Beyond the St. Louis Rapids large vessels could sail up for some distance—to encounter, however, forty miles of rapids before Kingston, at the foot of Lake Ontario, could be reached. It was plain sailing over the great lake, but between Lake Ontario and Lake Erie there was a distance of 27 miles, in the course of which the ascent was 300 feet, and the frowning front of Niagara Falls intervened. After entering Lake Erie the boat had free course through Lakes Erie, Huron and Michigan, but the way to Lake Superior was barred by the Sault Ste. Marie.

To Surmount the Rapids.

These several obstacles the Canadian people determined to overcome, so that from the western feeders of Lake Superior freighting of supplies could be carried on without interruption.

The first efforts resulted in artificial water ways to overcome the rapids immediately above the Lachine Rapids—the Cedar, Cascades and Coteau. These, begun in 1779 and finished in 1781, sufficed for a time.

But these were merely efforts of the 'prentice hand of Canada.

Within a few years an elaborate canal system was evolved. It included within its comprehensive grasp (a) the improvement of the St. Lawrence River, (b) of the Ottawa River, (c) of the Rideau River, (d) of the Richelieu River and Lake Champlain, and (e) later on, the completion of a canal in the Island of Cape Breton.

Extent of the System.

Connected with the St. Lawrence River there are 73 miles of canal—supplied with 49 locks of various dimensions, those in the line of direct navigation being from 270 x 45 feet to 900 x 60 feet in length and breadth, with a depth on the sills from 14 to 20 feet, the greater number of the locks being of the standard size, 270 x 45 feet, and 14 feet deep.

The work of completing this system of canals has been going on for many years, the canal to overcome the Lachine Rapids, near Montreal, having been begun in 1821, and the Welland Canal, to overcome Niagara Falls, in 1824.

In connection with this canal development it was resolved to provide a ship channel or submerged canal between Quebec and Montreal, in order to overcome the shoals, of which there were, in the aggregate, nearly 50 miles, divided among 30 different places, the widest being in Lake St. Peter (17.47 miles). These shoals were composed of gravel, sand, clay, boulders and shale rock.

This work was begun in 1844. By 1860 the increase of depth effected was 9 feet, giving a 20 feet channel to Montreal. By 1878 the depth was 22 feet; by 1882 it was 25 feet; by the end of 1888 it was 27½ feet. It is now practically 30 feet deep and 500 feet wide.

The total cost, including the expenditure on the abandoned straight channel to 30th June, 1904, amounts to $7,827,406, and the total quantity of dredged matter to 41,273,920 cubic yards.

An Interior Ocean Port.

This work has made Montreal remarkable, from the fact that it is a fresh water seaport, frequented by the largest craft, 986 miles inland from the Atlantic, 250 miles above salt water, and nearly 100 miles above tidal influences. In the bottom of a lake, whose water was from 11 to 18 feet deep upon the flats, a submerged canal has been excavated entirely by steam, 17 miles long, and with sides in the worst places over 18 feet high.

The growth of the shipping of Montreal has kept pace with the development of the channel. In 1850 the number of vessels arrived from sea was 210, of an average tonnage of 220. In 1880 the number increased to 710 vessels and the average tonnage to 900 tons. In 1890 the vessels entered and left in one year numbered 776, and the average tonnage was 1,630 tons. In 1900 the vessels at the port entered and left were 850, with a total tonnage of 2,068,313, an average of 2,550 tons. In 1904 the vessels entered and cleared numbered 796, with a total tonnage of 1,856,681 tons, an average of 2,690 tons per vessel; the largest vessel entered having a tonnage of about fifteen thousand tons.

Montreal leads the Atlantic ports of this continent in average size craft, the Port of New York coming next.

In actual sea-going tonnage entered, Montreal rivals Baltimore, and is only exceeded by New York, Boston, Philadelphia, and New Orleans.

Linking the Lakes. The most recent expansions of the St. Lawrence River canal system are the Sault Ste. Marie and Soulanges Canals.

The first named connects Lakes Superior and Huron, and is necessary because of the difference of 18 feet between the levels of the lakes. At this place the first canal built was in the year 1797 by the Northwest Fur Company, to enable them to carry their furs and supplies to and from the Indian country of the Northwest. The first canal was 40 feet long and 9 feet wide, and had a total lift of 9 feet, and the boats were towed from the end of the lock up a sluice-way by oxen the remainder of the distance to Lake Superior. This canal had the first lock ever built on the North American Continent. The site upon which this primitive lock was built is preserved and used as a fish pond, and the oaken floor is as good apparently as it was when laid over a hundred years ago. Locks of various sizes have been built from time to time, and now there are three locks in operation, two on the United States side and one on the Canadian. The larger one on the United States side is 800 feet long and 100 feet wide. The Canadian lock is 900 feet long and 60 wide, and is said to be the longest lock in the world. Both the Canadian and the United States locks can pass vessels drawing 20 feet of water.

The Tonnage Passed. The business accommodated by these canals is very considerable. Indeed, few persons have any idea of the extent of the business served by the canals at the Sault Ste. Marie.

The tonnage amounts to more than three times that of the Suez Canal.

The Canadian Sault Canal is operated by electricity, and, in consequence, the average time of making a lockage, including all delays to vessels in this lock, is fourteen minutes and fourteen seconds.

The total cost of building the Canadian canal at Sault Ste. Marie is $4,216,529.

Since it was opened the Canadian "Soo" has carried of wheat, grain and flour, during the first seven years an average of 19,140,000 bushels a year. Last year it passed 34,994,000 bushels of grain.

Another Big Canal.

The Soulanges Canal, opened in the autumn of 1899, is 14 miles long. The rise of 8½ feet between Lake St. Louis and Lake St. Francis is overcome by four locks. Three of these, each of 23 1-3 feet lift, occur in the first mile from the Ottawa River. Then there is a reach of some two and a half miles to the fourth lock, which has a lift of 12 or 13 feet to low water level of Lake St. Francis. The canal is, for purposes of navigation, a straight line throughout. Electricity is used as the motive power.

The amount of earth and rock removed to make this canal was about eight million cubic yards.

The other canals of this system have been brought into unison with the general scheme.

The Niagara Route.

The Welland Canal, constructed to pass the Niagara Falls, lifts vessels of 255 to 260 feet in length from Lake Ontario to Lake Erie, a lift of 327 feet. Begun in 1824, opened partially in 1829, and wholly in 1832, its enlargement was begun in 1841 owing to the fact that the size of vessels had so increased that more than one-half the vessels navigating the lakes were unable to pass through the canal. The first enlargement was no sooner completed than it was found necessary to increase the depth of water, as the vessels continued to increase in size. In 1859, the St. Lawrence route not maintaining its share of the Western trade, and of the grain trade in particular, inquiries were instituted into the causes of diversion to rival routes. The result was a second enlargement. The canal has now twenty-six locks of the

standard size—270 by 45 feet, with 14 feet of water on the sills.

The Ottawa and Rideau Canal system has for its object the connecting of Montreal by the way of the Ottawa and the Rideau Rivers with Kingston at the foot of Lake Ontario. The total distance from Kingston to Montreal by this route is 245 miles. The larger locks are 200 by 45 feet and the smaller 134 by 32 feet. These canals were originally constructed to afford an interior line of water communication. The highest point is the Rideau Lake, which is 292 feet above the level of the Ottawa at the outlet of the canal.

Another System.

The Richelieu and Lake Champlain system commences at Sorel at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, and extends along the latter river to the basin of Chambly; thence by the Chambly Canal to St. Johns; thence to Lake Champlain, at the southern end of which connection is made by the Champlain Canal with the Hudson River, by which the city of New York on the Atlantic seaboard is reached. The Chambly Canal is 12 miles long.

It will thus be seen that by the canal system of Canada, as originally sketched, it was proposed: 1st, to form an interior route of transport from Montreal to Lake Ontario adapted for the conveyance of troops and munitions of war; 2nd, to overcome obstacles in the St. Lawrence and thus give continuous safe water communication between the grain-growing regions of the great Laurentian Lakes and Montreal; 3rd, to make Montreal a port for ocean steamships of the largest size; and 4th, to bring Montreal and New York into communication with each other by means of water transport.

Cost of the Canals.

The total amount expended on the construction of our canals to 30th June, 1904, is $87,223,164. If to this sum is added the cost of the submerged canal between

Montreal and Quebec, the total amount expended in the effort to supplement our waterways as means of communication is over 93 million dollars.

The number of vessels passing through our canals in 1899 was 29,680, with a total tonnage of 7,594,303 tons, or 1,644,000 tons less than passed through the Suez Canal in the year 1898.

The proportions of freight carried, taking the Welland Canal as the standard, are: Forest products, 14 per cent.; farm products, 50 per cent; merchandise and manufactures, 36 per cent.

There are affluents of the St. Lawrence which have either not needed canal aid or but to a small extent. Thus the Saguenay is one of the tributary streams of the great river. It is navigable for the largest vessels for nearly ninety miles. The Ottawa River is opened by means of St. Anne's Lock, one-eighth of a mile in length, and thence forms a water thoroughfare for a distance of more than 200 miles for vessels 200 feet long by 45 in breadth.

Regulation of Rates.

The canals are all the property of the Government and are operated as a public service. On the St. Lawrence system of canals passage is free, the tolls having been abolished several years ago.

While of great service as a means of transportation the greatest benefit from the canals is the manner in which they regulate railroad rates. In order to get freight business where the canals are the railroad companies have to give good service, quick despatch and low rates to all classes of freight. In the grain business the canals are supreme until locked up in the winter by frost. The season is from early in the spring until the latter part of November.

XVII.

THE RAILWAYS.

There are more railways under construction or projected in Canada to-day, than in any other country in the world.

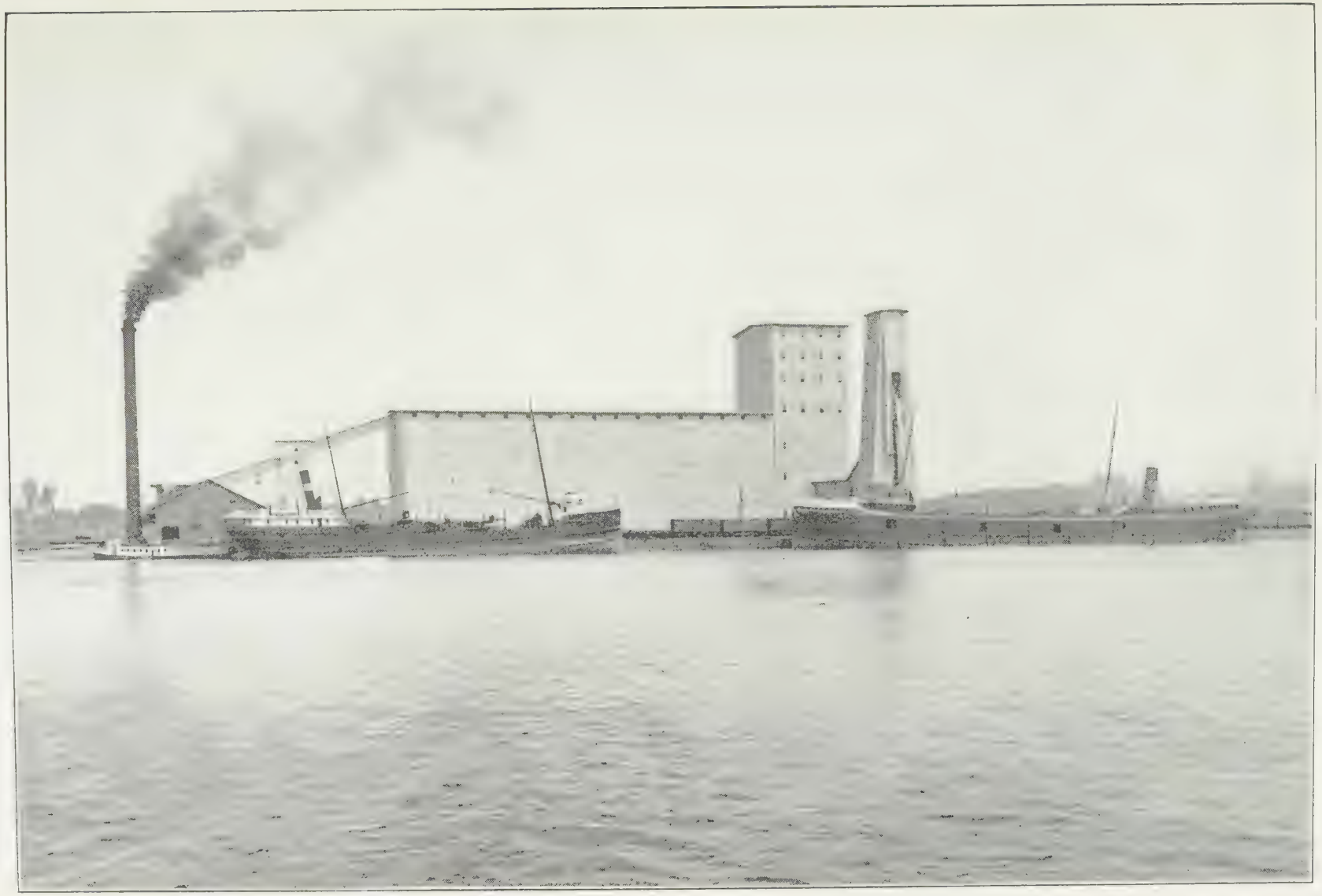
It was early felt that railways were needed in addition to canals. In 1832 a charter was obtained from the Legislature of French Canada for a railway to connect the waters of the St. Lawrence, near Montreal, with those of Lake Champlain, by taking the base line of an isosceles triangle, instead of the two water sides up to that time used, thus securing speedier communication between Montreal and New York by a mixed water and rail route. It was opened in 1836, horses being used at first and locomotives in the following year. Two railways were incorporated in 1834 in Upper Canada.

In Nova Scotia a railway was built in 1839 to connect the coal fields of Pictou with the loading grounds on the Gulf of St. Lawrence.

The First Transcontinental Line.

It was, however, in the year 1851 that the country began to feel the need for a comprehensive system of railways. In that year an Act was passed by the Legislature of the Province of Canada making provision for the construction of a main trunk line through the two Canadas. In the same year delegates from the British North American provinces went to England to arrange for the construction of a railway from Quebec to St. John and Halifax, and in that year the construction of a railway through British territory to the Pacific Ocean was brought before the Legislature.

In 1855 there were 563 miles of railway in what is now the Dominion of Canada. The Grand Trunk Company had also constructed 292 miles in the United States to connect Montreal and Portland. It was, therefore, with promise for the future rather than actual fulfilment



DEPOT HARBOUR, CANADA ATLANTIC RAILWAY, ONTARIO.

that Canada presented herself at the Paris Exhibition of 1855. Work went on slowly at first. By 1865 the 563 miles had become 1,290 miles, and in 1867 there were about 2,000 miles of railway in the country. The union of the four provinces of Upper and Lower Canada, Nova Scotia and New Brunswick took place in 1867. In the next decade there was an addition of 3,218 miles. By 1887 the added miles were 8,575, and in 1904 the total miles of track laid were 19,611.

The Present Mileage.

Since 1867 the 2,000 miles with which Canada began her existence as a Dominion have increased over nine times.

Of existing railway Ontario has 7,220 miles; Quebec, 3,510; New Brunswick, 1,460; Nova Scotia, 1,104; Prince Edward Island, 210; Manitoba, 2,364; Northwest Territories, 2,200, and British Columbia, 1,544.

Down to the consummation of the union the several provinces had expended $150,000,000 for railways, of which Government had contributed $31,400,000; other sources, $118,600,000. Since that time the Federal or general Government has contributed $152,000,000, and other sources, $845,000,000, making a total expended for railways of $1,146,500,000, towards which the Government of the Dominion has contributed 16 per cent., including the Government railways, the cost of which amounts to $70,860,000.

In addition, the general Government has given large grants of land, amounting, in the aggregate, to about 57,000,000 acres, of which the grant to the C.P.R. was on final adjustment 18,200,000 acres. The total expenditure is placed at over $1,100,000,000.

The Distribution of Roads.

Taking population and railway mileage, the western portions of the Dominion have a larger railway mileage in proportion to population than the older provinces.

Thus, British Columbia, the four Territories and Manitoba have 12 per cent. of the population and 30 per cent. of the whole railway mileage, while Ontario, Quebec and the Maritime Provinces, with 88 per cent. of the population, have a little under 70 per cent. of the railway mileage.

The reason for this difference is that the railways in the newer portions of the Dominon have been built as a means of transporting settlers and opening up the country, while in the older and better settled provinces railways have followed settlement instead of preceding population.

This accounts in a measure for the large amount of assistance in money and lands the Government has given to the railways, in addition to the cost of construction of railways owned and operated by the Government.

Another Great Line.

Canada has by no means completed her railway development, but as population increases will find herself constantly forced to provide more mileage.

It is difficult even now for the existing railways to carry to the seaboard the surplus grain crop of Manitoba within the season, and so keenly is this seen by our public men that one of the important measures adopted by the Federal Parliament during 1904 session was for a Grand Trunk Pacific Railway from the Pacific Coast to the Atlantic, with a more northerly route than that taken by the Canadian Pacific Railway. Within a short time Canada will have three transcontinental lines. The new line will open up for settlement a new Canada to the north of present settlement. It provides, also, another avenue to Europe for the wheat of the western prairies.

In 1855 there was no connected system of railways in actual use. It was in the brains of our public men, ready to be turned into iron and steel as soon as the men and money could be found.

In 1867 things were not much better. Still, the work

done began to show. Four hundred and ninety-one locomotives were needed for the 2,089 miles of railway then in running order. There was an equipment of nearly 8,000 cars of all kinds. The passengers carried numbered 2,784,600, and the freight carried amounted to 2,272,000 tons. The revenue had reached the respectable sum of $12,000,000, and the expenditure was about $8,000,000.

The average charge per passenger was $1.63, and per ton of freight $3.19. For this charge of $1.63 the passenger was somewhat roughly transported from one chief town to the other, without any conveniences of any kind. Iron rails were used. There was but a single track on the road-beds and that was roughly laid, so travelling was anything but comfortable.

Last Year's Business.

In 1904 the passengers carried numbered 23,640,765, and the freight carried amounted to 48,097,518 tons. The revenue of the railways was $100,218,436, and the working expenditures were $74,563,162.

Nowadays the passenger is comfortably housed, fed and otherwse provided for at a considerably lower rate of charge. He travels on a smooth road-bed, laid with steel rails connected in the most up-to-date way. He hardly notices that the train has started or has stopped, except by means of the sense of sight. He leaves Montreal or Ottawa in the evening, goes to bed, and wakes up in the morning in Toronto or well on his way to St. John. The speed has been developed in strict ratio to the improvement in other respects. Some of the more important railways between centres of population give the public an average annual speed of 45 miles an hour for the passenger trains. Several have an annual average of 40, of 35, of 30 miles an hour.

Across the Continent.

The Canadian Pacific Railway carries passengers from Montreal to Vancouver, on the Pacific Ocean, 2,906 miles, in 100 hours—

notwithstanding that 600 miles of mountainous region are included.

For freight trains the annual average of all the railways of Canada in 1903 was 17 miles, the highest averages being 35, 34, 30, 27, 26 and 20 miles.

In 1903 the equipment of the railways included 2,640 locomotives, larger and more powerful than the 491 that sufficed in 1867; and 90,633 cars of all kinds—beyond comparison superior to the 8,000 in use in 1867.

In addition, the railways of to-day are provided with snow ploughs and flangers which reduce to a minimum the liability of detention during the winter months.

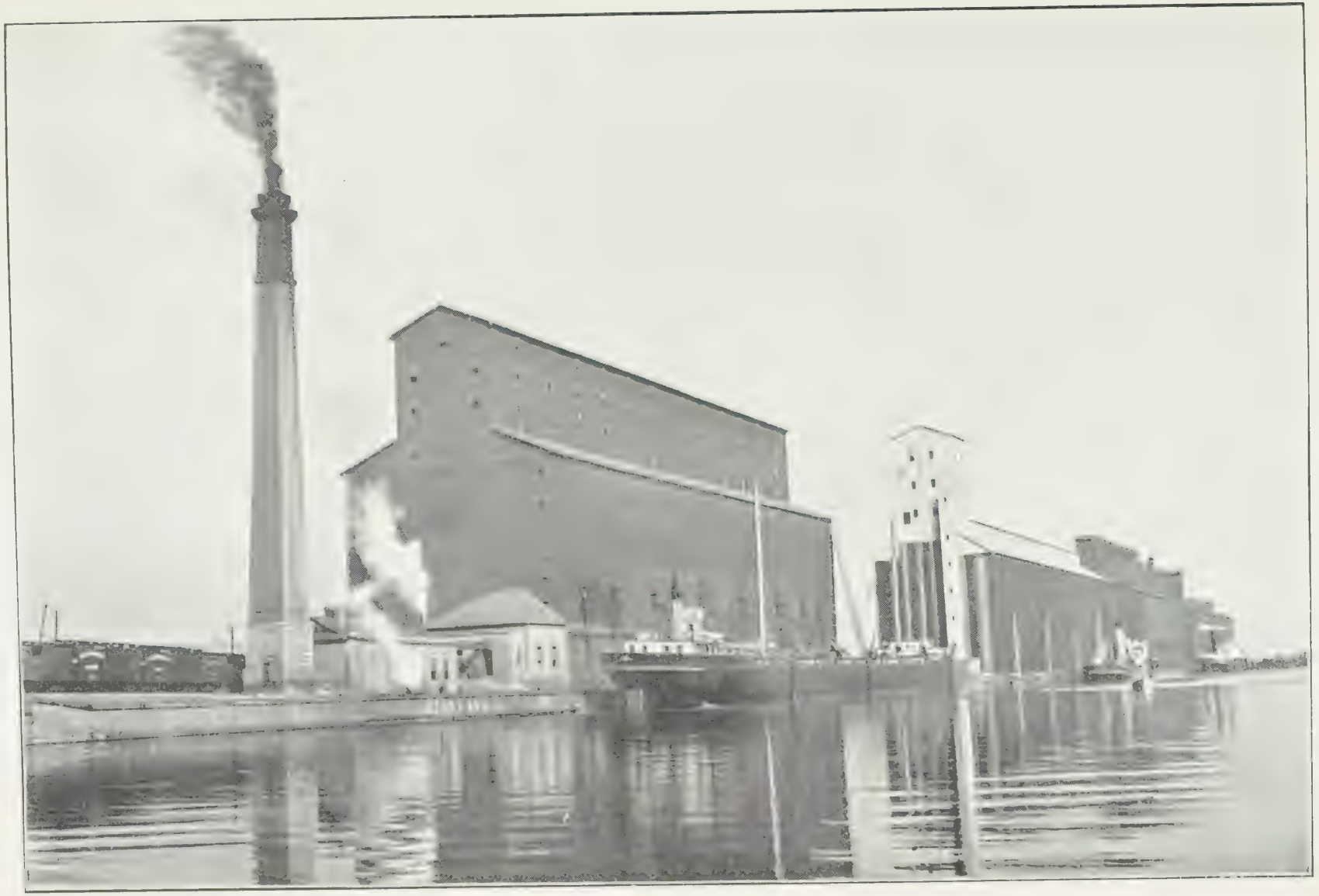
The people used the railways for passenger traffic at the rate of 8,000 in every 10,000 of the population in 1867. In 1904 they used the steam railways so much that every 10,000 of the people had taken 40,000 passages.

Electric Lines.

In addition to this use of the steam driven railway car the people of Canada have 767 miles in all of electric railway, and this method of transport they utilized in 1904 to such an extent that 181,689,998 passengers were carried, which is equal to thirty-one passages for every man, woman and child in Canada. Thus every person in Canada averages thirty-five passages a year by steam or electrical car.

The railway system of Canada consists of 191 railways. By process of absorption and assimilation, twenty-five of these have been amalgamated and form the Grand Trunk Railway System. The consolidation of twenty-seven railways has produced the Canadian Pacific Railway System.

Thirty-six railways, not included in the above, employ electricity as the motive power. These are used chiefly in the cities and towns, though in some instances in Western Ontario they are employed in transporting passengers through rural districts.



CANADIAN PACIFIC RY. ELEVATOR, FORT WILLIAM, ONTARIO.

The Canadian Pacific Railway has a mileage of 8,332 miles; the Grand Trunk, 4,177; the Intercolonial Railway of 1,315 miles, and the others of over 7,000 miles. **Length of the Lines.**

The Canadian Government's railways, generally called the Intercolonial, are the only railways owned and operated by Government, the others being company-managed railways. The Government railways cost $80,000,000 for construction and equipment, and have been run at a net expenditure greater than receipts amounting to $12,330,000, equivalent to an average loss of $342,500 a year.

Their value, however, has more than compensated for this charge upon the revenue. Like a river, they have developed the regions through which they pass, and have been a great factor in the increase of internal trade, which hardly existed before the Union in 1867, and is now, taking Ontario and Quebec Provinces as one, over $150,000,000 a year. Ontario and Quebec have, with the other provinces East and West, this exchange of commodities, almost non-existent thirty-two years ago.

XVIII.

CANADA'S SHIPPING.

The commerce of Canada is largely water-borne. On the Great Lakes, on the Atlantic, and on the Pacific many vessels are carrying the products of the Canadian farm, forest, factory and mine to the markets of the world.

Canada employs in her over-sea trade a tonnage of 15,826,705 tons of shipping. In the distribution of the products of Canada and the United States, by means of the Great Lakes and the rivers connected with them, there were employed 15,375,500 tons in 1904.

In addition to the shipping employed for over-sea

and lake transport between other countries and Canada, there is the shipping employed in the coasting trade of the country. This shipping carries goods from port to port within Canada, and is called coasting, though the word by no means expresses all that is meant to be conveyed. Thus, a vessel going from Yarmouth, Nova Scotia, to Boston, across the mouth of the Bay of Fundy, is classed as engaged in the ocean or over-sea trade, while a vessel going from Quebec or Montreal to Vancouver or Victoria, in British Columbia, and having to go round Cape Horn, is classed as a coaster. The tonnage engaged in the coasting trade of Canada amounted in 1904 to 45,505,000 tons. Thus, for the water-borne trade of Canada in 1904 there were required 76,607,205 tons of shipping.

The Extent of Growth.

The growth of each of the three branches is a fair index of the development of Canada. In 1868 the tonnage required to carry on our business of an international character between other countries and ourselves over the ocean amounted to 4,320,000 registered tons; in 1900, to 14,175,200 tons; in 1903, 15,826,705 tons. The tonnage on the Great Lakes, carrying the trade between Canada and the United States, amounted to 8,663,500 tons in 1868, to 12,739,000 tons in 1900, and to 15,375,500 tons in 1904. The demands of the coasting trade required 8,000,000 tons of shipping in 1868; 33,631,730 tons in 1900; and over 45 million tons in 1904.

Since 1876 the tonnage of the shipping required to do the water-borne business of Canada has increased from 20,212,138 tons to 76,607,205 tons in 1904. The increase is divided: (1st) increase of tons employed in over-sea carrying trade, 169.6 per cent.; (2nd) increase of tons employed in inland lakes and rivers in carrying between Canada and the United States, 345.3 per cent.; (3rd) increase of tonnage employed in the coasting trade, 336.7 per cent.

The growth of the internal trade is indicated but partially by the tonnage engaged in the coasting trade, since, on account of the construction of the Canadian Government and the Canadian Pacific Railways, connecting Montreal and Quebec with Halifax and St. John, a large amount of freight that would go by vessel is carried by car, nearly one-half of the freights of the Government Railway connecting Nova Scotia and New Brunswick with Montreal consisting of coal and lumber.

As a Ship Owning Country.

The Dominion stands seventh on the list of countries owning shipping, Great Britain, the United States, Germany, Norway, and France, in the order named, being ahead of Canada.

For many years Canada made rapid strides in ownership of vessels, and in 1878 reached her highest point, having in that year 1,333,015 tons of shipping on her registry books.

During previous years the tonnage of vessels built in Canadian shipyards was as high as 191,000 registered tons in 1874. Since that year there has been a decrease, till, in 1896, it fell to 16,146 tons. In 1898 there was a slight revival, the tonnage of new shipping built amounting to 24,522 tons. This was offset to a certain extent by the sale to other countries of 17,210 tons.

The reason for the almost complete cessation of the ship-building industry is, of course, the change from wooden to iron and steel ships. The reasons for the very great decrease in tonnage owned in Canada are the cessation of building and the sale to other countries, principally Norway.

To Build Steel Ships.

The country has set itself energetically to work to remedy this state of things. At the base is the development of the iron industry by the encouragement of the manufacture of pig iron. This has been so successfully prosecuted that instead of the proportion of home-made pig

being 36 per cent. of the whole consumption, as it was in 1884, it has been in recent years from 75 to 88 per cent. of the whole.

Steel is being made at Louisburg, at Sydney, and at Sault Ste. Marie. There are plans projected for the establishment of steel ship yards at all of these places. There is a good yard near Toronto, where steel craft of a lake size have been built for a number of years past. The latest production of this yard is a third-class cruiser for fishery patrol work on the Great Lakes. The boat has a speed of twenty-one miles an hour.

XIX.

MARINE PROTECTION.

For the protection of the shipping that resorts to our harbors, and for the development of the St. Lawrence River as a route to the interior of this continent, and as part of the great Canadian highway between Europe and Asia, the country has supplied itself with securities to navigation rendering the several approaches to Canada from the Atlantic and from the Pacific Oceans as safe as the approaches to any of the great ocean terminals in any part of the world.

The light-house system of Canada is free for all nations without payment of dues of any kind. It is extensive, rapidly expanding, and is maintained in a high degree of efficiency.

In 1867 there were 198 light stations, 227 light-houses, and two fog whistles in the Dominion, as then constituted. In 1903 there were 796 light stations, 996 light-houses; fog whistles, bells, fog horns, etc., etc., 99. The whole number of persons engaged in the outside service lookng after the "lights of Canada" was 2,027,

The Coast Safeguards.

With this staff, and at an average expenditure of about one million dollars a year, the ports and harbors of the sea coasts, the rivers and the Great Lakes are looked

after, and rendered safe for the mariner in storm or fog. There are 3,200 miles of sea coast and 2,600 miles of inland coast provided with fog whistles, bell buoys, automatic buoys, ordinary buoys, and beacons. Steel coast-buoys have been substituted for the ancient wooden ones, and the districts buoyed number about 350, with 4,200 buoys.

Gas buoys are provided in the St. Lawrence, in Pelee Passage, Lake Erie, and in Parry Sound.

Twelve or fifteen steamers are employed in this service, and they are constantly on the move examining the buoys, visiting the light-houses and the humane establishments, and inspecting the lifeboat stations.

Of course many thousands of miles of Canada's coast line included in the Hudson Bay line and other parts have not been lighted, the requirements of navigation not yet embracing these regions.

There are 27 life-saving stations. Wireless telegraphic stations have been established at the mouth of the St. Lawrence Gulf and a system of sub-marine bell warnings is being put in to further safeguard the St. Lawrence route. There is a steady development of the channel lighting system.

XX.

TELEGRAPHS AND TELEPHONES.

The country is well supplied with the telegraph and the telephone systems.

The telegraph system is in the hands of companies, the Government only owning and operating those lines which have been built in furtherance of the public service between places where traffic could not be expected to be sufficient to compensate private outlay, but where public interests require that there shall be communication, especially in connection with the signal and other stations established by the Marine Department along the

shores of the Gulf of St. Lawrence, the Maritime Provinces and British Columbia and the more distant portions of the Northwest Territories.

The total number of land lines and of cables owned by the Government in 1903 was 6,293 miles, 397 miles being cables.

In British Columbia and the Yukon Territory the Government has 3,000 miles in operation. The remaining mileages is divided among the Great Lakes, the Gulf of St. Lawrence, the Bay of Fundy and the north shore of the Lower St. Lawrence River.

The Government lines are used by the Government for purposes connected with quarantine, the fisheries and the fisheries protection service. Daily reports are sent from the stations in connection with the fisheries of the several Eastern Provinces to one central station, where the movements of the fish are charted, and then telegraphed to the principal fishing localities of the provinces.

The Private Lines. The companies between them own over 30,000 miles of telegraph line and 90,000 miles of wire; have 2,700 offices and send and receive five and a half million messages. The accommodation thus afforded is equal to any country, Canada having a telegraph office for each group of 2,026 persons, while the United States has one for each group of 3,349, Great Britain one to every 3,834, France one to every 3,273, and Germany one to every 2,842.

Telephone Companies. The telephone system is under the control of companies, 62 of which fairly enough cover the ground. The returns from 50 of these show that in 1902 there were 1,800 offices, 70,721 sets of instruments, 135,816 miles of wire on 16,000 miles of poles, and that the number of messages sent was about 212 millions. The telephone system is largely

utilized throughout Canada in the rural districts, the farmers by means of it being put in close touch with the markets, to their very great benefit.

XXI.

THE BANKS.

For the disposal of the business transactions of the country, internal and external, there are thirty-five banks with a capital paid up of $80,055,596. In addition they have accumulated earnings, called reserves, amounting to over 54 million dollars. The system adopted in Canada is head offices with branches.

The Branch System.

Thus, the thirty-five main banks have over a thousand branches spread all over the country, there being 491 in Ontario, 183 in Quebec, 98 in Nova Scotia, 45 in New Brunswick, 87 in Manitoba, 50 in British Columbia, 11 in Prince Edward Island, and 81 in the Northwest Territories. The Bank of Montreal, with head office in Montreal, has a total of 58 branches, 27 in Ontario, 5 each in Quebec and Nova Scotia, 4 in New Brunswick, 3 in Manitiba, 8 in British Columbia and 6 in the Northwest Territories.

These branches are in constant communication with the head office, and thus the General Manager is kept in touch with the trade movements of all sections of the country.

The basis of the banking system is gold and Dominion notes.

The Banking Act.

The several Acts relating to the subject require that the general Government, to whom banking and currency are allotted by the fundamental Act of Union, shall hold (1) 15 per cent. of $30,000,000 in gold; (2) 10 per cent. additional either in gold or Dominion securities

guaranteed by the Imperial Government; and (3) gold, dollar for dollar, of any excess of issue over $30,000,000.

Holding these securities, the Federal Government may issue Dominion notes redeemable at certain points, and these the banks must hold to the extent of 40 per cent. of their cash reserves.

Thus prepared, the banks may issue notes, for not less than $5, to the amount of the unimpaired paid up capital.

Note Security. To further protect the note holders, the banks have to deposit with the Government an amount equal to 5 per cent. of their note circulation to form a fund for the security of the note holders, who are further secured by a provision requiring that the notes of a suspended bank shall bear interest at 6 per cent. till the public is notified that the notes can be redeemed.

Dominion Notes. The Dominion has a monopoly of the $1, $2 and $4 notes.

The circulation on December 31, 1904, of all denominations, was:—Dominion notes, $47,772,877; bank notes, $64,507,394. Against the Dominion note circulation, and against the deposits in the Post Office and Savings Bank Deposits, for which 10 per cent. has to be held in gold, the Government held of specie, $35,742,701, and guaranteed debentures $1,946,666, in all $37,689,368, while the banks had $17,617,529 in specie and $38,436,983 in Dominion notes, in all $56,054,512. Thus, at the base of the system is the sum of $56,054,512 in gold, supplemented by Government debentures of a face value equal to about $10,00,000.

The banks have assets on the whole equal to considerably more than the liabilities, the latter being, in a ten year period, 80 per cent. of the assets.

The public use these banks for deposits and for discounts. The discounts, representing the assistance the

banks give to the business men, are a fair gauge of the business activity.

The following table shows the development of the banking business in Canada. The Banking Business.

	1868	1878	1888	1898	1903
	$	$	$	$	$
Discounts....	52,299,950	119,682,659	141,962,373	223,896,320	472,019,689
Deposits.....	33,653,594	70,856,253	125,136,473	236,161,062	424,167,148

In addition to their paid up capital, the banks have developed a rest, being amounts earned but not paid out in dividends. The amendment to the Bank Act requiring the statements of the amounts at rest was passed in 1883, and in 1887 the amount was $17,883,000, increased in 1898 to $30,000,000, and attaining the figure of $47,762,000 in 1903. The banking capital employed in Canada is therefore really over $118,000,000.

The business of the banks as represented by the transactions of the clearing houses is shown to be large. Montreal was the ninth city on this continent in extent of the bank cheques. Clearing House Showing.

The Canadian system works well, providing an elastic currency, which responds to the calls of the community in harvest time and retreats within the banks as soon as there is a redundancy.

In addition to supplying the loans needed by the business men of Canada, the Canadian banks loan to the business men of the United States, Cuba and other countries from $65,000,000 to $70,000,000.

The Canadian Post Office also provides a Savings Bank Department, with Government guarantee, which affords an easy means of deposit for surplus earnings. As its purpose is to encourage thrift among persons work- Post Office Banks.

ing on salaries or wages, without interfering with the legitimate work of chartered banks, the amount which may be deposited in the Post Office Savings Bank is limited. No person may deposit more than $1,000 in one year, or have more than $3,000 standing to his credit in the Post Office Savings Bank. On all deposits within these limits interest is allowed at the rate of 3 per cent. per annum. That this convenience is very largely taken advantage of is shown by the fact that on the 30th June, 1904, there was standing to the credit of depositors the sum of $45,419,706.

XXII.

THE POSTAL SERVICE.

The postal service of Canada extends to all the settled portions of the country, and it is the policy of the Department to furnish postal facilities to new settlements as soon as they are formed. There were on the 30th June, 1904, 10,460 post offices in the Dominion. Additions are being made to the number of post offices at a rate exceeding 300 in a year, the large proportion of the new post offices being to accommodate the settlers who are so rapidly filling Manitoba and the Northwest Territories.

Carrying The Mails.

In the conveyance of its mails the post office makes use of every facility provided for transportation of passengers and goods —railways, steamboats, stages, and, in the very remote and unsettled portions of the far north, even dog sleds are employed. Letters will pass from Halifax on the Atlantic Ocean to Vancouver on the Pacific, a distance of 3,662 miles, in 6 days; and in all parts of the Dominion, a letter will travel as fast as a passenger.

Low Postal Charges.

The postal rates in Canada are as low as in any country in the world. Letters are carried anywhere within the Dominion, and from any place in the Dominion to any place in the United States, or Mexico, for two cents per ounce. Letters from any place in Canada may be sent to any place within the British Empire, no matter how remote, at the rate of two cents per half ounce. Newspapers pass from publishers to subscribers at the rate of ¼ cent per pound, if they do not travel beyond 300 miles, and at the rate of ½ cent per pound if the travel is greater than 300 miles. These same low rates will take newspapers from Canadian publishers to subscribers in Great Britain, the United States, and Mexico, and in the following British Colonies; Bahamas, Barbados, Bermuda, British Guiana, British Honduras, British North Borneo, Ceylon, Cyprus, Falkland Islands, Fiji, Gambia, Gibraltar, Hong Kong, Jamaica, Leeward Islands, Newfoundland, New Zealand, Sarawak, Seychelles, Sierra Leone, Southern Nigeria, Transvaal, Trinidad, Tobago, Turk's Islands, Zanzibar, Malta, Mauritius, and Northern Nigeria. Newspapers sent by a private individual to any place in Canada, and to the countries just mentioned are charged half the Postal Union rate; that is, the Canadian rate is one cent per four ounces. The charges on samples of merchandise, and on commercial papers do not differ markedly from the rates of the Postal Union.

A Writing People.

The people of Canada rank high as users of the Post Office. According to the official statements, there were sent 259,190,000 letters from Canadian Post Offices during the last year. These figures show that the business of the Department has more than doubled within seven years. For the last few years there has been a steady advance in the amount of business transacted, at the rate of between 10 per cent. and 11 per cent, per annum.

Money Order System. The Post Office provides every part of the country with facilities for the transmission of money. Every Post Office sends and receives registered letters, and it is the policy of the Department to provide every Post Office, as soon as practicable, with the means of issuing and paying postal orders. Of the total number of Post Offices, viz.:—10,460, there are 7,102 or over two-thirds of the whole number which are in a position to transact this class of business, and the work of extending the facilities to the remaining offices continues to go forward unabated.

Volume of Business. The amount of business done by means of registered letters and postal orders, that is, either money orders or postal notes, is very large. Of registered letters, there were 5,986,000 posted in Canadian Post Offices last year. The value of the contents is necessarily unknown, but that is not the case with postal orders. The aggregate amounts of these which are sold from year to year are tabulated and the figures show a striking expansion of business. Last year the total amount of postal orders sold was $32,551,563. This is an increase of nearly three fold within the last fifteen years, but, more remarkable still, a more than two-fold increase has taken place within the last five years. As the year just closed showed an increase of thirteen per cent. over the previous year, it is obvious that the expansion has far from reached its limits.

XXIII.

TRADE AND COMMERCE.

The Canadian fiscal year ends on the 30th June. During the 36 years of Confederation, from 1868 to 1903, both years included, the total export and import trade of Canada was $8,292,853,220, making an average of $230,-

351,034 a year. The total external trade for the year ended 30th June, 1903, was $467,064,685, an increase of 102¾ per cent. over the average.

During the 37 years of Confederation, from 1868 to 1904, both years included, the total export and import trade of Canada was $8,765,586,258, making an average of $236,907,736 a year.

The total external trade for the year ended June 30th, 1904, was $472,733,038, an increase of 99.54 per cent. over the average.

The progressive development of the external trade is seen in the following figures:—

Annual average for 10 years,	1868-1877	$176,034,619
,, ,,	1878-1887	195,384,782
Year 1898-1900 (3 years)		335,884,728
Year 1901-3 (3 years)		425,959,428

During the first ten years the total trade averaged $47.80 per head; in the second period, $44.51; in the third period, $46.47; in 1898-1900, $63.85; and in 1901-3 it was $77.50.

The imports during the first ten years averaged $27.06 per head; during the second, $24.15; during the third, $24.28. In 1898-1900 they were $31.23 per head, and in 1901-3, $39.32 per head.

An Average of Imports.

The dutiable imports averaged $17.26 per head in the first ten years, $18.11 in the second, and $15.65 in the third of the decades. In 1898-1900 they were $18.72 per head and in 1901-3 $23.67. The imports free from duty averaged $9.81 per head in the first ten years, $6.04 in the second, and $8.63 in the third. In 1898-1900 they were $11.40 per head, and in 1901-3 $14.52.

The percentage of dutiable imports to the total was, in the first period, 66.2 per cent.; in the second, 75.9 per cent. In 1898-1900 they were $11.40 per head, and in 1901-3 it was 60 per cent.

Dividing the articles imported into classes, the results of analysis for the past 18 years are:—

Classified Comparison. Annual average 15 years, 1886-1900, compared with annual average for 3 years, 1901-2-3:—

A—Articles of food and animals, annual average,		
" " "	1886-1900.....	$21,008,093
" " "	1901-1903.....	29,197,711
B—Articles in a crude condition, which enter the various processes of home industry,		
	1886-1900.....	23,976,460
" " "	1901-1903.....	40,852,280
C—Articles wholly or partially manufactured for use as materials in the manufactures and mechanical arts.....1886-1900		19,664,500
" " " 1901-1903		39,582.467
D—Articles manufactured and ready for consumption .....1886-1900.....		41,114,772
" " "	1901-1903.....	75,596,123
E—Articles of voluntary use, luxuries, &c.,		
	1886-1900.....	9,857,145
" "	1901-1903.....	14,436,288
In the 1st class (A) the free goods averaged, 15 years.....1886-1900		8,767,350
	1901-1903	9,510,271
In the 2nd class (B) the free goods averaged, 15 years		19,113,157
	1901-1903	33,652,981
In the 3rd class (C) " "		
15 years.....		7,424 205
	1901-1903	19,420,735
In the 4th class (D) " "		
15 years		6,207,923
	1901-1903	15,835,847
In the 5th class (E) " "		
15 years.....		518,043
	3 years, 1901-1903	770,593

The customs duties are levied on the invoice value of the articles.

By classes these duties are:—

Class A—Customs duties, annual average, 15 yrs.	$3,639,622
" " 1901-1903	5,486,019

Class B—Customs duties, annual average, 15 yrs.		$ 1,089,444
" "	1901-1903	1,771,943
Class C—Customs duties, annual average, 15 yrs.		2,952,242
" "	1901-1903	4,021,635
Class D—Customs duties, annual average, 15 yrs.		9,590,070
" "	1901-1903	14,504,165
Class E—Customs duties, annual average, 15 yrs.		4,792,744
" "	1901-1903	7,463,863

Articles in the Classes.

The principal articles imported in Class A are bread-stuffs, fruits, provisions, sugars, tea.

The principal articles in Class B are coal, cotton, wool, drugs and dyes, fur skins, hides, ores of metals, hemp (undressed), logs (round and manufactured), timber, crude rubber, seeds, raw silk, unmanufactured tobacco and raw wool.

The principal imports under Class C are brass, cement, copper, cottons, drugs and chemicals, furs, iron and steel, jute, cloth and yarn, lead, leather, lumber and timber, marble, metals, oils, paints and colors, plaits (straw), potash, India rubber (elastic webbing), salt, stone, wood, woollen goods, and zinc.

The principal articles in Class D are agricultural implements, printed books and periodicals, brass manufactures, brooms and brushes, buttons, carriages, waggons, bicycles, clocks and clock cases, combs, copper manufactures, corks, cottons, earthenware and china, electric meters and motors, fishing lines and twines, fur (manufactured), flax, hemp and jute manufactures, gloves and mitts, gunpowder and other explosives, gutta percha manufactures, hats, caps and bonnets, iron and steel manufactures, lead manufactures, leather manufactures, metal manufactures, optical instruments, paper manufactures, printing presses, ships' boilers, soap, telephone instruments, twines, watches, webbing, wood manufactures and woollen manufactures.

In Class E the principal imports are ale, beer and porter, carpets, uncoloured cotton fabrics, curtains, fancy

goods, gold and silver manufactures, jewellery, musical instruments, paintings, drawings and engravings, silk manufactures, spirits and wines and manufactured tobacco.

Comparing the results obtained from the compilation of these tables with those obtained by a similar division of the imports of the United States, it is found as follows:—

PER CENT. OF EACH CLASS TO TOTAL IMPORTS.
AVERAGE OF FIVE YEARS.

	United States	Canada
A. Articles of food and animals	25.31	16.23
B. " in crude state	35.20	20.06
C. " wholly or partially manufactured	9.40	19.49
D.	16.46	36.84
E.	13.63	7.38

Canada and the United States. This analysis shows that Canada is less dependent than the United States on outside countries for articles of food and animals, that she buys from outside countries more articles in a wholly or partially manufactured state for use as materials for manufacturing, and less of articles in a crude state for manufacturing purposes. This fact, combined with the fact that Canada imports of Class D a much larger proportion than the United States indicates that the Dominion has not reached the high state of development as a manufacturing country attained by the United States. The gradual increase in the proportion of crude and partially manufactured articles shows that the country is following the same lines as the United States, and is slowly but surely becoming a self-supporting country.

Where Imports Come From. The countries from which Canada chiefly imports what she wants are: Great Britain, and other parts of the British Empire and the United States.

From these two countries Canada obtained in 1903 for home consumption $202,615,195, leaving $31,175,050 for all other countries to supply. Germany supplied $12,282,637; France, $6,580,029, and all other countries, $12,312,384, of which amount China, Japan, Belgium, Spain, Italy and Argentina sent $6,996,957.

In the ten year period, 1893 to 1903, the countries from which Canada imported stood relatively as follows:

1893	Imported from	British Empire	37.73	per cent.
1893	"	" Foreign Countries.....	62.27	"
1903	"	" British Empire	27.00	"
1903	"	" Foreign Countries.....	73.00	"

The British Preference.

In 1897 the Dominion of Canada provided a preferential tariff, under which goods coming from Great Britain and some other Treaty Powers should be admitted at a lower rate than those of other countries. The Parliament of Canada in 1898 made a change in the preferential tariff clause, by which imports from Great Britain, the British West Indies and other portions of the Empire, come into Canada on payment of a duty of customs 25 per cent. less than that levied on foreign countries. This came into operation on 1st August, 1898. Subsequently the preference was enlarged to 33 1-3 per cent. The results have been highly satisfactory.

The purchases of Canada from the Mother Country, which had fallen in 1897 to under 30 million dollars, from 68½ millions in 1873, rapidly increased. In 1901 they were 43 million dollars; in 1902, $49,200,000, and in 1903 nearly 62 million, a rate of increase which leads to the belief that in the near future the palmiest period of the past will be surpassed.

The Export Trade.

The total export trade of the Dominion during the period 1868-1903 (inclusive) amounts to $3,895,626,927, including domestic and foreign produce and coin and bullion. Of this amount $355,736,926 represents foreign ex-

ports and $191,447,418 coin and bullion and short returns, leaving $3,348,442,583 as the domestic export of Canada to be analyzed.

This export trade is divided as under:

Export of the Mine	$287,178,413
" " Fisheries	282,781,455
" " Forest	880,284,770
" Animals	958,707,222
" Agriculture	702,228,193
" Manufactures	225,129,441
" Miscellaneous	12,133,119
Total	$3,348,442,583

Taking them in their several branches, mines contributed 8.6 per cent.; fisheries, 8.4 per cent.; forest, 26.3 per cent.; animals and their products, 28.6 per cent.; agriculture, 20.9 per cent.; manufactures, 6.7 per cent.

Mineral Exports. The exports of the products of the mine show a large increase during recent years. The Dominion began its life with an export of a million and a quarter dollars of mineral products. It did not get above 6 millions till 1895. In the last three years the annual average export has been over 35 million dollars.

The exports of the fisheries have increased, the yearly average of the past 36 years being 8 millions of dollars, and the average for the last two years of the series $12,970,000.

The exportable surplus of the forest assets of the Dominion averages for 36 years $24,450,000 a year. The largest year in the record is 1903, when the exports attained the value of $36,400,000.

Manufactures Exported. Manufactures indicate first that the exportable surplus in 36 years was $225,130,000, and, second, that this exportable surplus has increased rapidly during recent years. The exports of the workshops of Canada formed 6.7 per cent. of the total of the exports in that

period. They formed 11.3 per cent. of the exports of the last three years, showing a considerable gain in volume.

Agricultural Exports.

The largest exportable surplus Canada has is that drawn from the operations of the farmers in the two branches of live stock and produce of the fields, orchards and gardens.

These two branches supply $1,660,935,415 of the total exports of Canada during 36 years. Thus during this period within a fraction of one-half of the surplus available for export has come from the labours of the farmers of the Dominion, numbering (by last census) 487,133. During the last three years of the 36 year period the exports of the farm have somewhat receded from their earlier position, and form under 40 per cent. of the whole exports, the exports of the mine, the fisheries, the forest and the workshop forming a larger proportion than in the earlier years.

The specific articles connected with the farm which show great increase in exports are (1) provisions, which increased as under:—

Export of Provisions.

1868	$ 3,862,682
1878	8,174,236
1888	12,895,939
1898	29,712,973
1903	50,463,125

The second list of specific articles which show great increase are grains and products of grains, as follows:—

Export of Canadian Grains and Grain Products.

1868	$12,131,705
1878	16,471,657
1888	11,919,379
1898	29,440,569
1903	34,491,782

Another class of exports of the farm which has developed rapidly is fruits.

Export of Canadian Fruits.

1868	$ 87,333
1878	149,333
1888	857,995
1898	1,709,360
1903	3,686,662

This business is as yet in its infancy. There were, according to the census of 1901, of fruit trees of various kinds 21,278,465, of which 15 millions were apple trees. Of the total, 6,304,402, or about 30 per cent., were not of bearing age.

The Cheese Exports.

In the exports of provisions that of cheese stands high. Great Britain imports over 300 million pounds weight, and Canada supplies over 77 per cent. of the whole.

In a general way it may be stated that about half of Canada's exports are from the farm, over one-quarter from the forest, and the remainder from the mines, the fisheries and the workshops.

With respect to the destinations of these exports, the United Kingdom has taken during the 36 years close to 60 per cent., with an upward tendency. The United States took in 1868 55 per cent. of our exports; in 1878, 36 per cent.; in 1888, 49 per cent.; in 1898, 27 per cent., and in 1903, 31 per cent. Other countries beginning in 1868 with 10 per cent. have continued to receive about the same percentage of our exports.

Taking the British Empire, the average percentage of exports from the Canadian portion to the others is 62 per cent.

The growth of the external trade of Canada is seen in the following comparison:—

Relative Percentage of Growth of Trade of the Undermentioned Countries for Seven Years (1895-1902.)

	Increase.	Percentage of Growth.
Canada (1896-1903)	$227,896,905	103.45
Japan	129,359,208	97.20
Cape Colony	76,294,709	43.55
United States (a) (1896-03)	775,058,014	47.18
Italy	197,468,942	45.99
Germany	683,111,578	38.59
Belgium	206,037,529	34.84
Argentina	65,004,094	31.31
Switzerland	81,755,424	26.82
United Kingdom	822,453,702	26.29
France	300,875,900	21.98

(*a*) *Includes total imports, not imports for home consumption only.*

Note.—Imports for home consumption and exports of domestic merchandise in all cases unless otherwise stated.

The exports of Canada were equal to $17.72 per head of the population in 1869; to $19.44 per head in 1878; to $31.57 per head in 1898, and to $40.85 per head in 1903.

XXIV.

CITIES OF THE DOMINION.

There are sixty-two cities and towns in the Dominion of Canada having, according to the census of 1901, a population of 5,000 and upwards. For purposes of comparison the populations by the previous census-takings are given. Wherever necessary the annexations of territory have been taken into account, so as to give for each census-taking as exact a comparison as is possible:

—	1871	1881	1891	1901
Barrie	3,398	4,854	5,550	5,949
Belleville	7,305	9,516	9,916	9,117
Berlin	2,743	4,054	7,425	9,747
Brandon	.....	.....	3,778	5,380
Brantford	8,107	9,616	12,753	16,619
Brockville	5,102	7,609	8,791	8,940
Chatham	5,873	7,873	9,052	9,068
Charlottetown	8,807	11,485	11,373	12,080
Collingwood	2,829	4,445	4,939	5,755
Cornwall	2,033	4,468	6,805	6,704
Dawson City	.....	.....	.....	9,142
Fredericton	6,006	6,218	6,502	7,117
Galt	3,827	5,187	7,535	7,866
Glace Bay	.....	.....	2,459	6,945
Guelph	6,878	9,890	10,537	11,496
Halifax	29,582	36,100	38,437	40,832
Hamilton	26,880	36,661	48,959	52,634
Hull	3,800	6,890	11,264	13,993
Kingston	12,407	14,091	19,263	17,961
Lachine	1,696	2,406	3,761	5,561
Levis	6,691	7,597	7,301	7,783
Lindsay	4,049	5,080	6,081	7,003
London	18,000	26,266	31,977	37,981
Mile End	800	1,537	3,537	10,933
Moncton	600	5,032	8,762	9,026
Montreal	115,000	155,238	219,616	267,730
Nanaimo	.....	.....	.....	6,130
Nelson	.....	.....	.....	5,273
New Westminster	.....	1,500	6,678	6,499
Ottawa	24,141	31,307	44,154	59,928
Owen Sound	3,369	4,426	7,497	8,776
Pembroke	1,508	2,820	4,401	5,156
Peterborough	4,611	6,812	9,717	11,239

Notman, Montreal.

MONTREAL, QUEBEC.

—	1871	1881	1891	1901
Quebec	59,699	62,446	63,090	68,840
Rat Portage	.....	.....	1,806	5,202
Rossland	.....	.....	.....	6,159
Ste. Cunegonde	1,500	4,849	9,291	10,912
St. Catharines	7,864	9,631	9,170	9,946
St. Henri	2,815	6,415	13,413	21,192
St. Hyacinthe	3,746	5,321	7,016	9,210
St. John	41,325	41,353	39,179	40,711
St. Thomas	2,197	8,367	10,366	11,485
Sarnia	2,929	3,874	6,692	8,176
Sault Ste. Marie	879	780	2,414	7,169
Sherbrooke	4,432	7,227	10,110	11,765
Smith's Falls	1,150	2,087	3,864	5,155
Sorel	5,636	5,791	6,669	7,057
Springhill	.....	.....	4,813	5,178
Stratford	4,313	8,239	9,500	9,959
Sydney	.....	.....	2,427	9,909
Toronto	59,000	96,196	181,215	208,040
Three Rivers	7,570	8,670	8,334	9,981
Toronto Junction	.....	.....	.....	6,091
Truro	.....	3,461	5,102	5,993
Valleyfield	1,800	3,906	5,515	11,055
Vancouver	.....	.....	13,709	26,133
Victoria	3,270	5,925	16,841	20,816
Westmount	200	884	3,076	8,856
Windsor	4,253	6,561	10,322	12,153
Winnipeg	241	7,985	25,639	42,340
Woodstock, Ont	3,982	5,373	8,612	8,833
Yarmouth	2,500	3,485	6,089	6,430

The City of Montreal.

Montreal is the chief city of Canada. It is built upon a series of terraces, marking the former levels of the river, and is nearly four miles long by two broad. Mount Royal, which rises 700 feet above the river level, forms a magnificent background to the busy city. Its hotels and public buildings are fine, and Dr. W. H. Russell years ago pronounced its quays "imperial in their proportions."

Fourteen lines of steamships trade regularly to the port.

The statistics of the business of the port are as follow:—

Years	Sea-Going Vessels Arrived	Total Tonnage	Merchandise Exported	Merchandise Imported
			$	$
1850.....	211	46,156	1,744,772	7,174,780
1880.....	710	628,271	30,234,904	37,103,869
1885.....	629	683,854	25,274,898	37,403,250
1890.....	746	930,332	32,027,176	45,159,124
1895.....	640	1,069,386	40,348,197	41,996,686
1900.....	726	1,393,886	65,314,197	68,550,993
1903.....	802	1,890,904	105,841,034	93,183,449

Montreal is the centre of the great railway systems of Canada. The Grand Trunk, Canadian Pacific and Canadian Government railways have their headquarters in this city. The Central Vermont and South-Eastern railways connect the two systems first mentioned with the railways of the Eastern and Central United States. Besides these, there are several minor roads centering there, ten railway lines in all converging on Montreal. It is the most important manufacturing city in the Dominion, having large and varied industries, which give employment to many thousands of artizans.

The City of Toronto.

Toronto is the largest city on the Canadian side of the Great Lakes. It is the seat of the law courts, and the centre of education for the great Province of Ontario. Entered by six railways, converging from different points of the compass, possessing a fine harbour, situated in the centre of a rich agricultural district, and being at once the religious, educational, political, literary, legal, and commercial centre of the most populous province of the Federation, it has advanced with great rapidity. Its population in 1901 was 208,040. Its growth is manifest by the returns. The value of assessed property in 1878 was $49,053,765; for 1886 it was $72,721,559, and for 1901, $130,400,000.

Notman, Montreal. TORONTO, ONTARIO.

Notman, Montreal.

HALIFAX, NOVA SCOTIA, FROM CITADEL.

The City of Quebec.

Quebec is passing through a period in its history, such as all the old garrison towns of Canada have passed through since the withdrawal of British troops. In addition, it has had to experience the sharp rivalry of Montreal, made the keener in consequence of the improvement of the channel between the two cities. The effects were seen in the small increase in the population in 1891, compared with the previous census taking. The construction of railways, and the development of manufactures and interprovincial trade during the last twelve or fifteen years, have given the Ancient Capital a fresh start. The extent to which it has suffered through the successful absorption of its trade by Montreal may be judged by the fact that, while in 1876 the tonnage entered outwards for sea was 711,386 tons, in 1903 it was but 546,173 tons; Montreal in the same years increasing from 368,925 tons in 1876 to 1,891,000 tons in 1903. The Canadian Pacific Railway has extended its facilities to Quebec, thus connecting it directly with the great Northwest by rail.

Halifax and St. John.

The chief cities in the Maritime Provinces are Halifax and St. John. Both are fine ocean ports. The harbour of Halifax is pronounced the finest among the great harbours of the Empire. It is easy of access for ships of every class, and capacious enough to afford anchorage for the navies of all Europe. It runs inland over fifteen miles, and, after passing the city, suddenly expands into Bedford Basin, a beautiful sheet of water, covering an area of nine square miles, completely land-locked. Halifax is the chief naval station of British North America, and the only eastern city now occupied by Imperial troops. The city and harbor are protected by eleven different fortifications, armed with powerful batteries. Large stores of munitions of war of all kinds, including torpedoes, are kept there by the Imperial Government. It has of late years made rapid strides in manufacturing.

St. John, the commercial capital of the Province of New Brunswick, is admirably situated at the mouth of the River St. John, has a harbour open all the year round, regular steam communication with all parts, and railways running east, west and north. It has extensive maritime and manufacturing interests, and is the centre of the lumber trade of the country watered by the St. John River. It suffered severely in 1877 from a fire which reduced the business portion to ashes, but with characteristic energy the people set to work to rebuild their city, and it now forms an active, progressive community. The population of Halifax and of St. John is about the same—each 42,000.

The City of Hamilton.

According to the census of 1901 Hamilton was the fifth most populous city of Canada. It is one of the most rapidly growing and enterprising cities in the Dominion, beautifully situated on the south-western curve of Burlington Bay, at the western extremity of Lake Ontario, and has superior facilities for becoming a large manufacturing city, being accessible from all points by railway and lake navigation, and being situated in the centre of the finest grain-producing region of Ontario. In 1901 it had an assessed value of $27,100,000.

The City of London.

London, the westernmost city in Ontario, is splendidly situated on the River Thames, in the County of Middlesex. Sixty years ago its present site was a wilderness; now it is a fine city, regularly laid out, having wide streets well built upon with handsome buildings, with an assessed value of $17,300,000. It has good railway communication with all parts of Canada. The aim of its founders was to reproduce in Canada the names associated with the London. Accordingly, it has its Pall Mall, Oxford, Waterloo, and Clarence Streets; Westminster and Blackfriars Bridges. London (Canada) is surrounded by a rich agricultural country, fur-

OTTAWA, ONTARIO.

nishing it with a large trade in wheat and other produce. Within its borders are numerous manufactories, mills, machine shops, foundries, breweries, banks, asylums, colleges, etc.

The Capital of Canada.

Ottawa, the seat of the Federal Government, is the entrepot of the great lumber trade of the Ottawa River and its tributaries, and on the piling grounds around the Chaudiere Falls there is always a stock of lumber estimated at 125,000,000 feet. To keep these filled to their fullest capacity a number of mills cluster around the falls, employing, some of them, over a thousand men; supplied with the finest machinery; lighted with powerful electric lights, by the aid of which work during the season is maintained without ceasing both day and night. The extent of the lumber trade of this region, of which Ottawa is the centre, may be estimated by the fact that, during the past sixteen years, an annual average of 3,785,000 pine logs has passed down from the Upper Ottawa and its tributaries. The city itself is also lighted by electricity. Its population is over 60,000, and the assessed value in 1901 was $25,100,000.

The structures belonging to the Federal Government are the chief attraction of Ottawa; the main one, situated on a high bluff which juts out into the Ottawa River, is the Parliamentary Building. It contains the Senate Chamber and House of Commons. The dimensions of these halls are the same as those of the House of Lords, viz., 80 by 45 feet; they are lighted by the electric light. The whole building, which is 500 feet in length, is constructed of a light-colored sandstone, the walls and arches being relieved with cut stone dressings of sandstone, and with red sandstone. The library, a circular building, constructed after the plan of the British Museum, has a dome 90 feet high, and is in the rear of the central tower, which is 250 feet high.

Separated from the main building, and distant from

either end about a hundred yards, are two departmental buildings, each with a front of 375 feet in length. The growth of departmental business, occasioned by the development of the Northwest, has rendered necessary the construction of a third departmental building, which has a front of 287 feet in length. The buildings together cover about four acres and cost over $5,000,000.

Ottawa is well connected with the rest of the Dominion by railways, which run in every direction, north, south, east and west. As illustrative of the extent of country governed from Ottawa, the distance of some of the cities and towns of Canada from the capital may be given:—Battleford (Northwest Territories), 2,328 miles; Calgary (Northwest Territories), 2,141; Winnipeg (Manitoba), 1,302; Victoria (British Columbia), 2,871; Toronto, 261; London, 377. These are western cities. Turning eastward, Halifax is 978 miles distant from Ottawa; St. John, 835; Charlottetown (Prince Edward Island), 1,060; Montreal, 120; and Quebec, 279 miles. By the aid of railways and telegraph lines, cities as far apart as Charlottetown and Victoria are within hailing distance of the Capital.

The City of Victoria.

Victoria, the capital of British Columbia, is a thriving city with a winter population of 24,000. The seal-fur, salmon canning, fish and lumber trades have been greatly developed during recent years, and the harbours of Victoria and Esquimalt are thronged with shipping to an extent unknown a few years ago—an earnest of the business that will be done there in the near future. The scenery is marvellously fine; the climate salubrious, and sport abundant. It boasts of being the most English town in Canada. It has direct steam communication with San Francisco. A submarine cable across the Gulf of Georgia connects it with the main land, and thence with the other Canadian cities. The telephone system and electric light have been introduced, as is the case in

Notman, Montreal.

VICTORIA, BRITISH COLUMBIA.

Notman, Montreal.

VANCOUVER, BRITISH COLUMBIA

Notman, Montreal.

WINNIPEG, MANITOBA.

most of the cities of Canada. The assessed value of the city is about 21 million dollars.

The City of Vancouver

Vancouver is one of the rapidly growing cities of the west coast. In 1886 it was practically non-existent. In 1889 it had a population of 5,000 and an assessed value of property of $2,639,077. In 1901 the population was 26,133, and its assessed value over 18 million dollars.

A Mining City.

Rossland is another of the rapidly growing towns of the mining regions of Canada. It was a town of 1,000 inhabitants in 1895 and in 1901 it had a population of 6,159 with an assessed value of over two million dollars.

The city of Winnipeg is of recent growth. Its population in 1871 was 241; in 1881, 7,985; in 1891, 25,600, and in 1901, 42,340.

The city is lighted by electricity and gas. It has good banking facilities, hotel accommodation, street cars, and complete water and drainage systems. The main street, 100 feet wide, is paved with cedar blocks, over two miles in length, and is one of the handsomest streets in Canada. The city, like nearly all Canadian cities, is provided with the electric fire alarm system, and the equipment of the fire brigade is complete.

XXV.

THE CANADIAN PRESS.

There may have been a printing press in Canada before the country was ceded to Great Britain in 1763. If there was, it was here only temporarily, and was taken back to France before the English took possession.

There was a printing press in Halifax, Nova Scotia, and from it a newspaper was issued early in 1752. In Quebec the first published newspaper was issued in midsummer, 1764. New Brunswick followed in 1785; Prince

Edward Island in 1791. Upper Canada (now Ontario) did not rejoice in a newspaper till 1793. British Columbia sought enlightenment from newspapers first in 1858; the Northwest Territories in 1850, and Manitoba in 1872. The Yukon Territory had papers for the first time in 1898—the "Klondike Nugget" and the "Midnight Sun."

Half a Century Ago.

In 1855 there were about 100 publications in the shape of periodicals and political newspapers, of which about 30 were published in Lower Canada, and the others in the several provinces now constituting the Dominion, by far the greater number in Upper Canada, now Ontario.

The census of Canada for 1851 gives the number of compositors at 900. The census of 1891 gives the number at 6,550.

In 1885 Canada had 646 newspapers and periodicals published within her borders.

Of the 646 papers published in 1885, daily were 71; tri-weekly, semi, bi, and weekly, 484; semi-monthly, 13, and monthly, 73.

In 1900 the total periodical press equipment of the country was 1,251 publications. Of these 117 were issued daily or oftener, 866 were semi, bi, and weekly papers, and 254 were semi-monthly and monthly.

Nationalities of the Press.

In 1885 there were 7 journals published in German, 51 (of which 15 were daily) in French, the remainder being in English. In 1898 there were 98 (of which 8 were daily) published in French, 9 published in German, 1 in Danish, 1 in Swedish, 3 in Icelandic, 1 in Gaelic, 1 in Chinook, and 1 which employs three languages, Cree (Indian) French and English.

According to provinces the number of newspapers and periodicals were:—

	1885	1901	Increase
Ontario	396	679	283
Quebec	113	195	82
Nova Scotia	46	87	41
New Brunswick	38	53	15
Manitoba	28	99	71
Prince Edward Island	11	18	7
British Columbia	8	66	58
Northwest Territories	6	54	48
Total	646	1,251	605

Naturally the increase in the newer provinces is proportionately greater than in the older.

The provinces of Ontario and Quebec hold relatively nearly the same position as they did in 1885.

Distribution of Papers.

Taken by area Prince Edward Island is the best newspaper cultivated province in the Dominion, since she has one for every 111 square miles of territory. Nova Scotia comes next with one periodical for every 337 square miles. New Brunswick has one for each 530 square miles; Manitoba one for each 640; Ontario one for each 800 square miles; Quebec one for each 1,776 square miles. British Columbia has 6,000 square miles for each journal; the Yukon 32,700 square miles.

Taking population for a basis of comparison, Ontario began the present century with 1 periodical for each 3,200 of her population; Quebec with 1 for each 8,355 of her people; Manitoba one for each 2,464; Nova Scotia one for each group of 5,280; New Brunswick one for every 6,247; Prince Edward Island one for each 5,736, and British Columbia one for each 300—Manitoba and British Columbia thus standing at the head. The journals published in the English language in the Province of Quebec numbered 104, viz., 8 daily, 54 weekly, 7 semi-weekly, 32 monthlies and 3 quarterlies. Counting daily and weekly editions as separate publications, there were

95 French papers in the Province of Quebec, viz., 53 weeklies, 4 semi and 2 tri-weeklies, 7 daily, 24 monthly and 6 semi-monthlies. Almost every province had one or more papers published in the French language, and in all there were 107 printed in French in the Dominion, or about 8 per cent. of all the periodical press. There were in other languages 19 papers—Danish, German, Gaelic, Icelandic and Swedish, and one in Chinook and one in Indian, by name "Ongwe Onew." One hundred and six journals encourage the faithful to good denominational works. Besides these strictly denominational works there were 30 which deal with religious questions without reference to denominations. Educational questions were looked after by 9 monthlies, 2 semi-monthlies and 1 semi-annual; 21 college and university journals.

Industrial Journals.

Agricultural and farming interests were watched over by 25 journals. There were 29 journals devoted to the interests of brotherhoods. Seventy-three devoted themselves to trade, manufactures, mining and lumbering, 4 to travel and transportation. Literature had 36 journals. The medical and dental branches of human industry had 19 journals—5 in French. There were 19 monthlies and semi-monthlies catering to the boys and girls of the country. A couple of dozen assist the household, and labour had 4 journals to look after its interests. Law had 4—2 in English and 2 in French; insurance, 7.

XXVI.

FUR, FEATHER AND FISH.

Canada has long been looked upon as the sportsman's paradise, possessing as it does so large a share of indigenous animals. The stringent game laws of the Old World are modified here, such laws of the kind as do exist having reference to the "close," or breeding season. Game here is common property; it affords food for the

settler, sport for the disciple of St. Hubert, and the hunter and trapper each find pecuniary profit in its pursuit.

Wild beasts, or beasts of prey, such as panthers, wolves and bears, although formerly abundant, are now rarely to be found, except in the depths of the great northern forests, or in the fastnesses of the mountain ranges. In the almost untrodden depths of the Rocky Mountains and in the Selkirk range in the Far West abundant trophies of the chase can yet be obtained by the adventurous sportsman who may turn his steps in that direction.

Thousands of sportsmen annually turn their backs upon civilization, and with rifle and fishing rod, seek game and fish in the Canadian wilds. The forests and streams of the Dominion contain two kingly specimens of game. The moose is the largest and strongest of the North American land animals. To kill one is an achievement of which to boast. The salmon is the finest game fish in American waters. He reaches perfection in the Canadian streams.

Wild Fowl Migrations.

The waters of Canada teem with wild fowl in the spring and autumn, especially during the latter season, when migrating to winter quarters in the South; and, as to the finny tribe, nowhere else on the American side of the Atlantic can such fishing be had as the various provinces of the Dominion afford.

To present to view as concisely as possible the advantages Canada offers to the sportsman, it will be well to give a description of the various kinds of animals and of the chief hunting grounds.

Canadian Animals.

Of wild animals, then, there are the panther, wild-cat, lynx, fox, wolf, bear, moose cariboo, elk, deer, antelope, mountain goat, mountain sheep, musk ox, buffalo, squirrel, marmot, hare, rabbit, porcupine, raccoon and badger. Of

fur-bearing animals there are the fisher, sable, weasel, ermine, mink, wolverine, otter, skunk, beaver, and, on the sea coast, the seal.

Sport in the Air.

Of feathered game, there are grouse (known here as partridge), prairie fowl, quail, geese, ducks, swans, brant, curlew, snipe, woodcock, plover, pigeon, cranes; whilst of hawks, eagles, owls, crows, and other carrion birds there are many varieties. Of smaller birds, beautiful either in plumage or for song, there is a vast abundance during the summer, and the ornithologist may revel to his heart's content in collecting specimens of great beauty.

In Canadian Waters.

Of fish there are, in the bays and harbors of the coast, mackerel, herring, cod, haddock, halibut (a species of enormous turbot), hake, pollock, shad, smelt, and eels, whilst of shellfish and lobsters there is an abundant supply. The rivers connecting with the sea on both the Atlantic and Pacific coast contain splendid salmon trout, whitefish, maskinonge, pike, pike-perch or dore, perch, bass, sturgeon, and a variety of smaller fish, and all the mountain streams are alive with brook trout.

Reptile life is not largely developed in Canada, a fact due, probably, to the long period of cold weather prevalent, and, apart from rattlesnakes, which are now comparatively rare, there are no poisonous snakes of any consequence. Lizards are not numerous, and attain no great size, but frogs and toads are abundant. The Menobranchus of the Great Lakes, a peculiar water lizard with external gills, and a similar reptile, the Siredon, in the lakes of the Northwest, are remarkable species of this class of animal life. Leeches infest the streams, especially in the Northwest, where they cause much inconvenience to explorers, surveyors, and others who have to travel over swampy ground and through shallow pools.

Insect Life.

Insect life is very abundant during the warm season, the butterflies being beautiful in color, and the beetles remarkable for their marking and brilliant hues. Years ago the locust and grasshopper of the Far West, at certain recurring periods, swarmed in such myriads as to be a terror to the district they invaded. Bred for the most part in the arid central desert, as soon as they obtain their wings they took the course of the wind in their flight, and carried devastation wherever they settled. During recent years there has not been a recurrence of this plague of the past. Mosquitoes are the chief insect tormentors, but their attacks end with the dry heat of summer, although they are always present in damp places. A large fly, known as "the bull-dog," is troublesome, but not abundant, and flying ants are apt to prove very annoying to the traveller over the Western plains.

An Occasional Visitor.

The American panther, cougar, or catamount, corresponds very nearly to the puma of South America. It was known to the early discoverers of the New World as the American lion, and was formerly abundant, but is fast disappearing before civilization. It is now heard of only occasionally, and then only when an unusually severe winter deprives it of its prey and drives it out of the tangled swamps or the northern solitudes. It is a dangerous animal to encounter, and when pursued will take refuge in a tree, when it is apt to spring upon the hunter or his dogs.

The wild cat and lynx are fast disappearing in the older provinces, but are common in the Far West, especially in the country bordering on the Peace River.

Foxes and Wolves.

Foxes are abundant everywhere, the common, or red fox, being of little value, while the cross or silver foxes are highly prized, especially the latter. They are shot or

trapped indiscriminately, but there are several well-organized hunt clubs in the Dominion, with their packs of hounds, who carry on the good old sport. The kennels at Montreal are especially worthy of notice, and the sportsman paying them a visit is certain to receive a cordial welcome.

Wolves in the older provinces are only found on the outskirts of settlements, but, unless met with in packs, in winter, they are great cowards. The grey wolf is a strong, powerful animal and very cunning. In the Northwest they are found on the prairie, around the willow thickets and hiding in the long prairie grass, but are abundant in the great northern forest, where deer are to be found. The prairie wolf or coyote is a smaller animal and very cowardly. It is common all through the prairie country, and it may be seen frequently in groups on a distant hill top, or heard around the camp at night. Its skin makes a useful addition to a settler's cabin, and is also a handsome trophy when dressed as a rug.

A Variety of Bears.

Although bears are plentiful in many parts of Canada, they are seldom seen (being nocturnal in their habits) except by the hunters. The black bear, the commonest of the tribe is perfectly harmless, and never attacks man unless wounded. Its food consists of berries and larvae of insects and ants; it plays havoc in a field of oats when ripe, in which, when feeding, is is easily shot. Its skin is much sought after, and bear's meat is frequently exposed in our markets for sale in winter.

The grizzly bear makes his home in the Rocky Mountains, whence he sallies forth on the plains, and is the most ferocious and dangerous of his tribe, being possessed of amazing strength and activity, attaining a weight when full grown of from 600 to 700 pounds. He is unable to climb trees like other bears, and when pursued turns and shows a most determined fight. Great

skill is required in the pursuit of this animal, but the danger of the chase renders the sport most exciting. There is a species of bear met with in the barren grounds of the Northwest and in the Peace River district known as the Cinnamon bear, very similar to the black bear in habits and size. It is comparatively rare.

Many Kinds of Deer.

The deer family includes the most important of our large game animals, of which the moose is by far the largest, standing as high as a horse. Hunting moose is an art, as the long snout and ears of this animal give it most acute powers of hearing and a very fine sense of smell. Its gigantic horns are well known and in constant demand, and its flesh is considered a great delicacy.

The elk, stag, or wapiti formerly distributed all over Canada, is now extinct in the older provinces, but is found in Southern Manitoba, and is yet abundant in the Peace River district, but is fast disappearing with the advance of civilization. Its fine branching horns make a splendid trophy, but they prove a most formidable weapon of defence when the animal is brought to bay.

The red deer is abundant, except in old settled districts where no forests are left, and its pursuit affords great sport to the huntsman. Indiscriminate slaughter, till within the last few years, threatened its extermination, but stringent laws for the observance of the close season are making the deer more plentiful.

The black-tailed, or mule deer, is met with in the bush country of the Northwest, but is rare and difficult of access.

Deer-shooting in season can be had in almost any part of Canada, provided guides are employed.

A Big Game Specimen.

The cariboo, or reindeer, is the fleetest, wildest and most shy of all the deer tribe.

The woodland cariboo is abundant in Labrador, and may be found in con-

siderable numbers in New Brunswick. In the adjoining Province of Nova Scotia, their numbers are gradually decreasing, their stronghold now being confined to the Cobequid Mountains and the uplands of Cape Breton. Proceeding westwards, it is found in Gaspe and the southwestern portions of Quebec, and in the northern districts back of the Ottawa and St. Lawrence Rivers, whence it ranges as far as the southern limits of Hudson Bay, where it is succeeded by another species known as the barren ground reindeer, or cariboo. This is a smaller animal, seldom exceeding 150 pounds in weight, whilst large specimens of the woodland cariboo weigh upwards of 400 pounds.

The Great Hill Climber.

The mountain goat is common in the Rocky Mountains above the tree line, but as winter sets in, it comes down to the lower grounds. Its long white wool is silky and beautiful. Professor Macoun speaks of them as being numerous on Mount Selwyn, and agile in jumping from crag to crag. In Bow River Pass they are abundant. This animal must be stalked with great caution, its habits being very much like those of the chamois in Switzerland.

The American big-horn, or Rocky Mountain sheep, is confined entirely to the mountain ranges of the far West, where it dwells secure amongst the high cliffs, leaping unscathed from crag to crag. It is exceedingly wary and difficult of approach, and has to be stalked with even more precaution than the stag. The horns on the male are so large at the base that they cover all the upper portion of the head down nearly to a level with the eyes, and the skull is exceedingly strong. The horns and head not infrequently weigh over 50 pounds.

The Fleet Antelope.

The antelope is the fleetest of all Canadian mammals, and when at rest is beautiful and gracefully statuesque. It is essentially a dweller in the open country, and is rapidly

disappearing before the advance of settlement. It can easily outrun a horse, but after running some time, it will stop suddenly, and, if the hunter hides, it will return and fall an easy prey. It is sometimes hunted with greyhounds, but more frequently stalked. Great caution and patience are required, as its eyesight is so keen that all the sportsman's care is needed to approach it.

In the Far North.

The musk ox is found only in the northern part of the Dominion, stretching from the waters of North Hudson's Bay to the Arctic Ocean. It is the size of a small ox, has very short legs, and yet is fleet of foot. Its fleece may almost be called double, with long surface hair, under which is close and fine wool. As a robe, the musk ox skin is preferable to that of the buffalo, of which it has taken the place.

The bison, or buffalo, in former times, was met with from the eastern boundary of Manitoba to the Rocky Mountains, and from the international boundary to Peace River. Before the advent of the white man, it roamed in countless thousands over the western plains, but to-day it is practically extinct. Like the Indian, it has retreated before civilization, and the whistle of the locomotive, shrieking across the prairie, has sounded the death-knell of the large game of the West.

Squirrels and Rabbits.

Of smaller animals, the sportsman can always find an abundance. In the older provinces squirrel shooting affords considerable sport, the black and gray species being there in good condition.

Rabbits are also abundant everywhere; but, unlike the English rabbit, they do not burrow, lying hidden under logs and stumps or rank herbage, whence they are started by dogs. In winter they change their grey coat to one of white fur, corresponding with the snow. This animal is really a hare in its habits, but only the size of an English rabbit. The country, especially in the

Northwest, seems alive with them in some years, while in others they are scarcely seen.

On the western plains and near the Rocky Mountains, the prairie hare, or jack rabbit, is found, corresponding closely to the English hare and about the same size.

In the older provinces the raccoon, which was once very abundant, is now scarce, and were it not for its nocturnal habits would long ago have become almost extinct. Coon hunting with dogs, on a moonlight night, on the edge of a grain field, where these animals resort to feed, affords great sport.

Of the marmot tribe, the ground hog is abundant on the edges of the clearings, and on the prairies gophers and prairie dogs are very common. The holes made by the latter are a source of annoyance to the rider, often causing as much inconvenience as those of the badger.

The latter is only met with in the far West, and is unknown in the old provinces. It is very shy, but at the same time inquisitive, peeping out of its hole, in which it takes refuge, to ascertain the cause of its fright.

Porcupines, an enlarged species of the English hedgehog, are met with, more or less, everywhere in warm slopes and thickets, and, like their English congeners, are slow in their movements.

The Fur Animals.

The fur-bearing animals are generally regarded as the peculiar property of the trappers and Indians, and although steadily sought after, are yet more or less abundant.

The wolverine is scarce and rapidly disappearing. Its skin is a handsome trophy, the animal being the size of a large dog.

The beaver is only to be found far from man's improvements, but, in the Peace River district they are yet to be found in colonies, and their dams are stated by explorers through that part of the country to be the cause

of the excessive floods that occur there. Many small lakes owe their existence to these dams.

Closely allied to the beaver but widely different in their habits are the musk-rats, common in all ponds, marshes and rivers from one end of Canada to the other. A very large business is done in musk-rat skins, and, although persistently hunted and trapped, its great fecundity saves the race from extinction.

The above short sketch of the mammals has been given, as the larger animals are more generally inquired after than small game. To enumerate the feathered or finny tribe would fill a volume, but it may safely be averred that no country offers a greater variety of ducks than Canada.

Some Sporting Birds.

Swans breed only in the far North, and are seen only when migrating.

The goose breeds on the northern lakes. Teal are abundant. Bitterns are common along the grassy marshes and sedgy banks of the rivers. Heron are not uncommon, and in Manitoba and the Northwest pelicans are abundant. Of the grouse, plover, woodcock, snipe and smaller game, due mention will be made in describing presently the hunting grounds of the various provinces.

Fish for All Fancies.

The same remarks apply to the fish of the Dominion, their name being legion, and every river, lake and pool teems with some kind or another which will afford sport either to the troller, fly-fisher or angler.

The hunting grounds of the various provinces may now be shortly treated of respectively.

Game in Nova Scotia.

Nova Scotia is more celebrated for moose and salmon than the other kinds of game that are found in the sister provinces. Moose are plentiful although constantly hunted. The neighbourhood of the chain of lakes between Annapolis and Liverpool, and the Petite and

the Garden Rivers is claimed as one of the best hunting grounds, whilst the Indian guides, necessary for the full enjoyment of sport, know all other likely grounds. Cariboo are found in the Cobequid Mountain district. Grouse are plentiful all through the province, but the finest shooting is woodcock, which are found in great numbers. Snipe are tolerably abundant, and salmon abound in all the rivers, whilst the number of trout will surprise the fisherman unaccustomed to Canadian streams.

New Brunswick.

The principal attractions of New Brunswick for the sportsman are moose, cariboo, salmon and the St. Croix trout or land-locked salmon. Moose are nearly as abundant as in former years. Guides will take parties into the woods and pledge their wages to get them a fair shot at one or more moose.

The great Tantamar marsh in the south-eastern part of the province has the reputation of being a splendid snipe ground, while the Restigouche is equally celebrated for the quantity of wild fowl, especially geese, that visit it.

Great Salmon Fishing.

The fishing in the New Brunswick rivers is especially good. The Nipisiguit, Miramichi, Restigouche, St. John, and others afford the salmon fisher glorious sport. A pilgrimage to the Restigouche would afford sufficient material to keep his memory busy for years. A well-known American sportsman writes that "the northern counties of the province that border on the Bay of Chaleur, afford unquestionably the best field for sportsmen to be found in America east of the Rocky Mountains." In the St. Croix and its splendid chain of lakes trout abound, and are of a kind peculiar to it, known as "land-locked salmon." Whether in reality a different species or a degenerated salmon is an open question, but they are very gamey, afford first rate sport,

and are excellent eating. Easy of access, and in a beautiful region of the country, St. Croix is a favourite with tourists.

Quebec a Game Region.

The Province of Quebec affords excellent shooting in many parts; swans, geese, ducks, grouse, woodcock and snipe, moose, cariboo, salmon, and trout are found in abundance in their several localities. The chase of the two former is only pursued during the winter, is hardy and exhilarating, but real, downright hard work, and repays the toil. In the rivers emptying into the River and Gulf of St. Lawrence, the lordly salmon is to be found, and the fly or any other fishing is simply superb. In the River St. Lawrence are localities noted as the resort of wild swans, geese and ducks, snipe and plover, curlew and sea-fowl of every kind, while the forests all through the province teem with grouse, and the woodland openings and swampy thickets harbor countless woodcock in their season. The large amount of unsettled country in the province tends to keep up the abundance of game, in which the more settled portions of Canada are deficient.

Game of Ontario.

The Province of Ontario is so varied in its different districts that what applies to one portion is perhaps the opposite of another. Where settlement has advanced, game has disappeared before it, but there are large tracts of the country yet remaining clothed with the virgin forest, only visited by the lumberman, in which game of all kinds abounds. The Ottawa district is one of these, as well as Nipissing and Muskoka, although the Canadian Pacific Railway and its connecting lines are now opening these regions for settlement, and a few years hence may class them only as amongst the localities that once held game. Moose are met with on the Dumoine and Coulonge rivers, and in the backwoods of the head waters of the Ottawa River, whilst deer are plentiful;

duck and grouse shooting is good, with a fair show of woodcock and snipe, and the waters teem with maskinonge, pickerel and bass. In all the rivers tributary to the Ottawa on its north shore, and in the lakes which lie scattered everywhere in its vicinity, trout are plentiful. In central Ontario, in the Old Frontenac or Kingston district there is still good sport to be had among the ducks, grouse and snipe, though not equal to former years. The country in its rear, being rocky or marshy, and unsuited for farming, still abounds with deer, and is a favorite hunting ground, especially along the Opeongo and Hastings section. At the Thousand Islands, a long stretch of the St. Lawrence River, unsurpassed for beauty, and a favorite summer resort, splendid trolling is afforded for bass and maskinonge, to say nothing of fishing for smaller fry.

Ontario Wild Fowl.

Rice Lake, in the rear of Cobourg, and the neighbouring lakes are famous for maskinonge and bass and the innumerable quantity of wild ducks that resort there to feed upon the vast fields of wild rice which abound along those waters. The Holland marsh, between Toronto and Collingwood, is famous for snipe, plover and duck. In its vicinity, in years gone by, was one of the famous pigeon roosts, or places where the wild pigeons flocked to breed in thousands, whence they made their daily incursions into the surrounding country for food. This has, however, disappeared, though stragglers occasionally return to the roost, but the mighty flocks of pigeons have emigrated to South America. In autumn these birds are to be found scattered in small flocks along the edges of clearings, feeding on grain fields, but their numbers are very limited and yearly becoming less. On Lake Erie, Long Point and Point Pelee, the St. Clair flats, on the western boundary, and Baptiste Creek, are admirable ducking grounds. Long Point, averaging eight miles in breadth and projecting some twenty miles into the lake,

with wide fringes of marsh on both sides, in which wild rice is the chief growth, is controlled by a club of sportsmen, who keep it strictly preserved, and thus have it well stocked with game. Quails have been introduced with grouse on the higher ground, and wild turkeys have, of late years, been introduced, which are thriving on the ridge of land, running the length of the Point, crowded with oak, maple, cherry, elm, and chestnut trees, affording a splendid cover for this noble bird.

Last of the Turkeys.

The only localities in Canada, apart from this, where the wild turkey yet remains are in the counties of Essex and Kent, and there they are rare. In the early days of settlement, the whole western peninsula of Ontario abounded with the turkey, and the peculiar growth of the woodlands there, comparatively free from undergrowth, permitted magnificent sport. Proceeding northwards along Lake Huron, along whose shores curlew, plover, and water-fowl abound, the Manitoulin Islands still afford good shooting and fishing in the waters round them. At the Straits of Mackinaw and Sault Ste. Marie splendid fishing can be had, the salmon trout of Lakes Huron and Superior attaining a very large size, whilst all the rivers running into the Georgian Bay and Lake Superior teem with trout, and are favourite resorts. Whenever the country is in a state of nature, the sportsman must rough it and live under canvas, laying in before he starts his necessary camp furniture and provisions. All along Lake Superior the rivers and streams running into it, especially the Nepigon, are a paradise for trout fishermen, and seem still to possess as many fish as when discovered. Bears, deer, and an occasional wolf may here be killed, whilst the larder can be well supplied with feathered game.

Manitoba and the Northwest.

In Manitoba, within a few miles west of Winnipeg, prairie fowl are to be found scattered in all directions, in

numbers sufficient to satisfy any sportsman, whilst in autumn ducks and water-fowl literally cover every pond and lake. Successive flocks of these keep sport alive. First, in August, the gray duck and merganser make their appearance, succeeded in September by sea-ducks of every description, and during these months geese, ducks and prairie-fowl take to the stubble fields, where civilization has reached, and are easily shot. Professor Macoun states that about forty species of game birds are to be seen on the prairie at that season. In Southern Manitoba the elk is yet found in the neighbourhood of Moose Mountain (wrongly named), for the moose frequents the country further north, lying between Lakes Manitoba and Winnipeg, and the country west of Lake Manitoba.

Fish in the Waters.

In the latter, as well as in the waters of Winnipeg, there are large quantities of whitefish of a very large size and superior quality, and sturgeon of an enormous size are found there, and in the Saskatchewan and Red Rivers. In all the mountain streams of the Northwest which unite to form the South Saskatchewan there are multitudes of beautiful trout with salmon-colored flesh. To the sportsman and the lover of the picturesque there is no place in that portion of Canada that holds out inducements equal to those to be found in the Bow River District. Hunting or fishing, as he turns his gaze to the west, he will see, towering up to the skies, peak over peak, the everlasting hills. Should the mountains become tiresome he has only to turn to the east and look over the swelling prairie, until in the distance the grassy mounds melt into the limitless horizon. The Peace River district is a great resort for bear, both black and grizzly, and there is abundance of the larger game also—elk, moose and deer. All its lakes team with fish of the very best quality; geese and ducks during their migration are in countless thousands, an evidence of which is given in the

fact of many thousand geese being killed and preserved for winter use every autumn at the Hudson Bay Post, Fort Chippewayan. At the same place no less than 25,000 whitefish are dried every year for winter use, such as are not required as rations for the men being fed to the train dogs. The country here is described as park-like, the undulating plains being dotted with groves of trees.

Mountain Sporting Grounds.

Within the Rocky Mountains, besides fishing, hunting the bighorn and the Rocky Mountain goat will give exciting sport. In spring and summer the males form separate bands of from three to twenty, and feed along the edges of glaciers, or rest among the castle-like crags of the high summits. Whether quietly feeding or scaling the wild cliffs, their noble forms and the beauty of their movements never fail to strike the beholder with lively admiration. In the months of November and December all flock together, male and female, old and young. Wary in the extreme, they are most difficult to approach, and it is only by exercising all the stratagems of a hunter that a shot can be fired at them. Man's incursions in the mountains are making the animals more wary every year, and were it not for the inaccessible places they are able to scale, and the giddy heights they fearlessly tread, where men cannot follow, their days would be soon numbered and they would become like the buffalo, an animal of history.

British Columbia Game Preserves.

In British Columbia, the general aspect of the country naturally impresses the sportsman that it is a land abounding with game. The rugged mountain ranges are wooded on their slopes, and have in their embrace, lakes, swamps and natural meadows; lakes of all sizes, from the little pond to the body of crystal-like water 100 miles long, often linked by streams, lake after lake turning and twisting to find an outlet to

the ocean, generally through one or other of the larger rivers of the province, all abounding with fish.

The Black Tail Deer.

On the low lands and near the coast in the winter the black-tail deer is numerous. This animal frequents the dense coniferous forests of the Pacific Coast, delighting in their dark and damp recesses. It is seldom found far from timber or from some thick covert into which it can retreat. To the northward, where it has been but little hunted as yet, it comes down frequently to the salt water to feed on a species of sea weed cast up on the shore, and the Indians kill many, so feeding, by stealing up within shot in their light canoes. Deer are abundant on the islands and among the mountains of the coast, but there are great areas of territory where, owing to the thick and tangled character of the undergrowth, stalking is out of the question, because of the impossibility of noiseless progress through the thickets.

Elk Can Be Had.

The elk is abundant on the coast line of the mainland, especially east of the Cascade range. Grouse are found everywhere, both on the mainland and the island, frequenting the thick fern and the pine lands, the willow grouse much resembling the English partridge. Prairie fowl are plentiful in the valleys of the east Cascade region, and occasionally the rare game bird, the large sage hen or "cock of the plains," may be found above Osoyoos. Ducks, geese, snipe and pigeon are everywhere, the mouth of the Fraser River especially being a great resort for wild-fowl. The valleys of the Thompson, Okonagon, and Cache Creek afford good sport for the rifle and the gun, and, in the mountain districts, bears may be had with the aid of a guide and experienced hunter. The grizzly and cinnamon bear, with wolves and lynx, can be hunted, but the sport is by no means free from danger, and considerable roughing must be encountered by the hunter.

The Greatest Salmon Streams.

Salmon in British Columbia are far more numerous than in the Atlantic provinces of the Dominion, coming up from the sea in millions; this is no exaggeration. Six species are said to exist in the waters of the Pacific Coast, four of which are excellent and of great commercial importance.

On the Fraser, the Skeena, and the Bass rivers large canneries are located. Trout abounds in all the lakes and streams, and whitefish are common in the lakes in the middle and northern interior of the province. Smelts of two kinds are abundant on the coast, and a delicate fish known as the "Candle fish," or Oolachan, is very abundant along the coast in spring.

In some portions of the province the country is open and dotted with trees, much like an old-world park, and a horseman can canter along at will without underbrush to impede his progress. Snow seldom falls to any depth, except in the mountains, and, as a consequence, the game is not driven from its regular grounds, as in many of the other older provinces.

Game Must Be Sought.

In conclusion, this remark applies universally; that with the advance of settlement animal life retreats. The western plains, so lately thronged with bands of elk and antelopes and roamed over by countless herds of bison, are yearly required more and more for human pastures, instead of nature's feeding ground. Hill, valley, forest and meadow everywhere are alike coming under man's control, thereby rapidly pushing to the verge of extinction many species of animals which were formerly abundant. But for the true sportsman there is yet abundance of game, and the migrations of the wild fowl save them from the universal destruction which threatens quadrupedal life. Canada is easy of access, its hunting grounds are equal to any of those in Europe, and free to

all, and for scenery and beauty of landscape, for the grandeur of its forests, the wild solitude of its mountains, and the placid waters of its inland lakes, it stands unrivalled.

XXVII.

AN HISTORIC OUTLINE.

The Norse Sagas have been recognized in recent years as possessed of undoubted value as historical works. The narratives which tell us of Vinland and of Leif Eric's son are closely intertwined with the authentic history of Norway and Iceland. From these Sagas of the tenth and eleventh centuries comes the record of the earlier voyages of discovery on the north-eastern shores of this continent. The movement of population from Norway, after the naval battle of Hafursfiord in 872, resulted in giving Iceland in a few years a population of 50,000 souls. Among these was a settler named Gunnbjorn, who, in 876, was driven by a fierce western storm to Greenland, where he and his crew passed the winter, returning to Iceland in the following spring. The story of their adventures lingered among the firesides of the homes of Iceland for many a long year, and after a century had passed, Eric the Red, being outlawed for killing a neighbour in a brawl, resolved to spend the years of his banishment in searching for the western land associated with Gunnbjorn's adventure. He left Iceland in 983, and in three years' time had explored the south-east of Greenland and, following the shore round Cape Farewell, had examined a portion of the west side, where he found in one of its deep fiords a place for a home. Returning to Iceland he proved himself so good an emigration agent that he soon left with 25 vessels. He encountered storms, and lost eleven of his fleet. The remainder, carrying four or five hundred persons, arrived safely at the selected spot.

The Legendary Colony.

The colony was successfully planted, and for four hundred years the descendants lived and laboured and loved on the west coast of the land Eric had named Greenland. During many years communication was constant between the colonists and the Mother Isle. Among those who accompanied Eric was one Herjulf, who, on one occasion, went to Iceland on a lengthened visit. His son, Bjarni, thought he, too, would cross over to Iceland to see his father. Landed there he found that his father had left for Greenland; sailing after him Bjarni was borne by contrary winds far to the south, making after many days an unknown land. He turned to the north, and in eight or ten days sighted the well-known fiord on the Greenland Coast.

Nova Scotia Visited.

Naturally there was much speculation about the unknown land Bjarni had seen, and some years after Leif, the son of Eric, sailed in the summer time of the year 1000 southward bound, and came to a barren land plentifully covered with flat rock. This land he called Heluland or Slate Land. Continuing his voyage of discovery, he arrived at a land covered with forest. The wooded coast he called Markland or Woodland. From this land he stood out to sea, and, driven before a north-easterly wind, came in sight of land. Following the coast, he came to a body of water connected with the ocean by a short river. Entering the lake he determined to winter there, and, as one of his men found grapes in abundance, Eric called the place Vinland, and there spent the winter, returning with a cargo of lumber to Greenland the following year. The communication with a lumber country, thus opened, continued from year to year till, in the spring of 1007, Thorfinn Karlsefni resolved upon forming a colony in Vinland, and accordingly sailed thither. The colony, however, did not succeed, and the survivors returned to Greenland in 1012. The best authority, Dr. Storm, con-

cludes after careful investigations that Vinland was that part of Canada known as Nova Scotia, and that these Norse voyagers sailed along the Labrador Coast, and the Newfoundland Coast, and crossing the straits had attempted colonization in Acadia.

Cabot's Visit.

The practical results of these early voyages of discovery were of little value. The facts were in the Sagas; but Southern Europe, having little or no communication with the countries in the north, never learned of the existence of the New Continent. It was not till John and Sebastian Cabot, father and son, had persuaded Henry VII. to commission them to make a voyage of discovery by sailing westward that Vinland was rediscovered in 1497, the landfall being, as seems fully established, at Cape Breton. In the following year, Sebastian Cabot made another voyage, going into high latitudes for the purpose of discovering a north-west passage to the Indies. On this voyage he sailed as far north as Hudson Straits.

Adventurer From the South.

Animated by his example, Gaspar Cortereal, a Portuguese gentleman, sailed along the eastern sea front of the country now called Canada, from Hudson Straits (which he named Rio Nevado—the "River of Snow") to the Bay of Fundy. It is claimed that he partially explored the Gulf of St. Lawrence, but of the result of his investigations no record remains. England and Portugal being thus connected by voyages of discovery with Canada, France was not far behind. The probable date of the first French expedition to Cape Breton is 1504. The French navigator Denys explored the great Gulf of St. Lawrence in 1506.

Transient Visitors.

From that time onward the rich fisheries of the Newfoundland Banks and the shores of the Gulf became the magnet drawing the hardy Breton, Basque, Norman and West of England fishermen to our coasts. Cape Breton, a name

published on the earliest maps, derived its name from the Breton fishermen, who thus began the long-continued custom of transferring the names of their Eastern homes to this continent.

None of the voyages thus taken, however, had any reference to the settlement of the country. It was reserved for France to make the first attempt in this direction, when, in the year 1518, the Baron de Lery fitted out an expedition with that end in view. Unfortunately the fates were not propitious to this venture, and beyond the landing of some horses on Sable Island, where they multiplied greatly and exist in droves to the present day, nothing was accomplished.

A French Discoverer.

France had as yet done little in exploring or occupying any portion of this boundless continent, whose wealth was filling the coffers of her rivals, and Francis I. resolved to claim a share of the prize. "Shall the Kings of Spain and Portugal," he exclaimed, "divide an America between them? I would like to see the clause in father Adam's will bequeathing that vast inheritance to them." Under his direction, therefore, in 1524, Verrazano, a Florentine, was sent forth. He ranged the coast from Florida to 50 degrees north latitude, and annexed on behalf of France the entire region previously explored by the Cabots, designating it "New France." The rival claims arising from these explorations were the chief grounds of the long and bloody conflict which later on was waged between Great Britain and France for the possession of this magnificent region beyond the seas, and the maritime supremacy that went with it.

Thus fitfully and feebly were the first attempts to found settlements on the North American coasts carried on up to the close of the first quarter of the sixteenth century, and, as we have seen, without anything practical or permanent being achieved.

French Occupation. In the year 1534 when France had somewhat rallied from the disaster inflicted upon her during recent wars, fresh enterprises were undertaken in the New World, and on the 20th April of that year the real discoverer of Canada proper, Jacques Cartier, a native of St. Malo, was sent out with two small vessels of about 60 tons each. Sailing through the Strait of Belle Isle, he scanned the barren coast of Labrador, and almost circumnavigated Newfoundland. Turning thence south-westward, he passed the Magdalen Islands, and on a glorious July day entered the large bay, for which the intense heat suggested the name of "des Chaleurs" it bears to this day. On the rocky headland of Gaspe he landed and, erecting a huge cross bearing the fleur-de-lis of France, took possession of the country in the name of his sovereign Francis I.

Up the St. Lawrence. Learning from the natives of the existence of a great river leading so far up into the interior that "no man had ever traced it to its source," he sailed up the Gulf of St. Lawrence until he could see land on either side. But the season being well advanced, he deemed it prudent to go no further until he should return next summer.

Delighted with the report his faithful lieutenants brought back, the French King, in the following year, fitted Cartier out with three fine vessels, of which the largest was 120 tons burthen, and despatched him with the special blessing of the Bishop of St. Malo and with a commission from himself to "form settlements in the country and open traffic with the native tribes." The little squadron reached the mouth of the St. Lawrence about the middle of July, and, the 10th of August being the festival of St. Lawrence, Cartier gave the name of that saint to the small bay in which he then was, since when it has extended to include the entire gulf and river.

Continuing up the noble stream, he came, on September 7th, to a fertile, vine-clad island, which he named the Isle of Bacchus. It is now the Island of Orleans. Here Donnacona, the Sachem of the Algonquin nation, made him a state visit, accompanied by no less than five hundred followers in twelve huge canoes; and seven days later, having made up his mind to winter in the country, Cartier anchored his fleet at the mouth of the St. Charles River, where stood the Indian town of Stadacona, beneath the high beetling promontory now crowned with the historic ramparts of Quebec.

Where Quebec Now Is.

Impatient to explore the river stretching out so grandly before him, Cartier advanced with fifty men in his smallest vessel. But the sand-bars of Lake St. Peter compelled him to take to his boats. In these he pressed onward, until on October 2nd he reached the populous Indian town of Hochelaga, nestling beneath the wood-crested height which, with characteristic loyalty, he called "Mont Royal," since anglicized into Montreal. The friendly natives thronged the shore by hundreds, and received the pale-faced strangers with manifestations of the utmost delight, loading their boats with lavish presents of corn and fish. From his kindly hosts, Cartier learned of the existence, far to the west and south, of inland seas, broad lands and mighty rivers, then an almost unbroken solitude, now the home of a prosperous people.

Montreal Visited.

After three days of pleasant intercourse, Cartier returned to Stadacona and wintered there, his little force suffering severely from insufficient food and inadequate clothing, being also plagued with scurvy of a malignant type, whose violence neither processions, vows nor litanies availed to stay. The following spring he returned to France, taking with him, much against their will, King Donnacona and nine of his chiefs as living trophies of his expedition.

The First Governor. Five years elapsed before Cartier returned to Canada as Captain General and Master Pilot. Associated with him was the Sieur de Roberval, whom the French monarch had created Lieutenant-General and Viceroy of his newly-acquired possessions. The natives were at first friendly as before, but became hostile on learning that Donnacona and his companions had not returned; and Cartier's treachery began to recoil upon his own head. Another gloomy winter was spent, and again the would-be colonists went back home disheartened, although Roberval, whom unforeseen obstacles had detained in France for a twelve months, meeting them at Newfoundland, tried hard to retain them. Roberval continued on his course, and wintered at Cape Rouge, whither, in 1543, Cartier was sent to carry the orders for his recall, and the latter, after enduring a third winter, left the country in the spring of 1544 never to return.

With the disastrous failure of all these early expeditions, the efforts of France to colonize Canada were suspended for a full half century, with the single exception of the Marquis de la Roche's quixotic attempt to settle Sable Island with a band of convicts selected from the royal prisons—an attempt, it need hardly be said, that had no other result than to furnish historians with a highly romantic episode, and a spot on that "dark isle of mourning" with the name of the "French Gardens."

Samuel de Champlain. With the opening of the seventeenth century there appears upon the scene one of the most remarkable of the many remarkable men who have taken an active part in moulding the destinies of Canada. This was Samuel de Champlain, whose high qualities both as a sailor and soldier marked him out as one peculiarly fitted for the task of opening up New France to civilization. Accordingly in 1603 he was commissioned, in conjunction with Pontgrave, for this arduous enterprise,

and his first voyage, which produced nothing but a cargo of furs, was made in that year. Two years later, however, he returned in connection with a much larger expedition, headed by the Sieur de Monts, who had obtained a patent of the vice-royalty of La Cadie or Acadie, now called Nova Scotia, and the first actual settlement by Europeans within the boundaries of the present Dominion of Canada was then (1605) made by de Monts at Port Royal (now Annapolis Royal) in Nova Scotia, and there the first field of wheat ever sown by the hand of white man in all Canada was sown—winter wheat it was, for Poutrincourt says "it grew under the snow."

A Bloody Outpost.

The little colony here established, after a fitful existence of several years, was finally destroyed by the English under Argall, the bitter strife between the French and English nations, which disturbed the continent for one hundred and fifty years, there finding its beginning, and making, during its continuance, Port Royal famous as the most assaulted spot on this continent. It has been taken by force, five times by the English—by Argall in 1613, by Kirk in 1621, by Sedgwick in 1654, by Phipps in 1690 and by Nicholson in 1710. It was by them abandoned or restored to the French four times—by Argall in 1613, by the treaty of St. Germain in 1632, by treaty of Breda in 1667 and by treaty of Ryswick in 1697. It was unsuccessfully attacked by the English three times—by Church in 1694, by March in 1707, and by Wainwright also in 1707. It was unsuccessfully attacked by the French and Indians twice—in July, 1744, by Abbe de Loutre, and in September, 1744, by Duvivier. It was taken, sacked and abandoned twice, once by pirates in 1690 and once by United States revolutionary forces in 1781.

Colonizing Quebec.

Passing from Acadia to Canada proper, we find Champlain in 1608 once more ascending the broad St. Lawrence, and on the 3rd of July, beneath the craggy heights of Quebec,

laying the foundation of one of the most famous cities of the new world. The colonists soon were comfortably housed and the land cleared for tillage. Thenceforward, during many years, the history of Quebec was the history of Canada, and its annals contain little beyond the pathetic struggles of the colonists with the difficulties of their situation and the dangers which constantly menaced them from their Indian foes.

Great Enemies Made.

For the intense hostility of the Indians, the French were themselves wholly to blame. We have already seen how Cartier's treatment of Donnacona recoiled on him; and now Champlain, under stringency of circumstance through necessity of dividing the Indian tribes for his own preservation, incurred the implacable hatred of the powerful Iroquois nation, by joining forces with the Algonquins in an attack upon one of their strongholds. The temporary advantage thereby gained was dearly paid for by a century and a half of rapine, plunder and nameless barbarities.

The Prince of Conde, Admiral Montmorency, and the Duc de Ventadour became successively viceroys of Canada, but the valour, fidelity and zeal of Champlain commanded the confidence of them all. Dauntless and tireless, he explored the St. Lawrence and Ottawa Rivers, warred against the Indians, visited the mother country again and again in the interests of his beloved country, strengthened the defences of Quebec; in fact, was the heart and soul as well as the head of the entire enterprise.

The First Siege.

While he was Governor of Quebec, the little town endured the first of the six sieges it has experienced in its eventful history. It was invested by Sir David Kirk, acting under instructions from the English Court, and starved into an honourable surrender in the year 1629. But it turning out that peace had been concluded between the nations before the surrender, by the treaty of St. Germain signed in

1632, the whole of Canada, Cape Breton and Acadie was restored to the French.

Three years later, Champlain's busy life drew to a close, and on Christmas day the noble soul, whose character was more like that of knight-errant of mediaeval romance than that of a practical soldier of the seventeenth century, passed peacefully away at the Castle of St. Louis, which he himself had built upon the summit of the cliffs of Quebec.

Governor Frontenac.

Champlain had many successors in the arduous office of Governor of New France, but none of like spirit, until Frontenac came in 1672, and the colony grew very slowly, scarce one hundred Europeans being added to it during the five years succeeding Champlain's death, while in 1663, when the charter of the Hundred Associates, a company which promised much and performed little, was annulled, the total foreign population did not exceed two thousand souls.

Work of the Priests.

The chief reason of this slow growth, as compared with the rapid advance made by the English colonies in Virginia and New England, was that, under Jesuit direction, far more interest was taken in the conversion of the savages than in the colonization of the country. From 1632 to 1682 priests of the Jesuit, Recollet and other orders, traversed the land, undaunted by trackless forests, terrible privations, merciless foes and appalling loneliness, pushing the work of the church wherever human beings were to be found and souls saved.

The Recollets were the first of Europeans to pierce the wilderness lying between the St. Lawrence and the Bay of Fundy. Within five years of their coming we find their sandalled feet on the Nepisiguit and on the St. John, on Cape Sable and at Port Royal. When Champlain made his expedition to the Huron country the Recollet Father LeCaron went ahead of him in his zeal, and was

the first to carry the cross to the tribes of the great Laurentian Lakes.

The Jesuits were the pioneers of civilization in the Far West. Their annual reports constitute a perfect mine of priceless information on early Canadian history. Conspicuous among them were Peres Hennepin, Lalemant, Jogues, Brebeuf, Chaminot, Marquette and Dablon, and many a priest heroically laid down his life rather than swerve aside, or turn back from the forward course he believed God had called him to pursue.

Montreal Founded.

In the spring of 1642 the foundations of Montreal, the future commercial metropolis of Canada, were laid by Maisonneuve with all the pious pomp and churchly ceremonial possible amidst such primitive surroundings, and thus onward into the heart of the country civilization slowly made its way, fighting with the relentless Indians for every foot of the passage.

In 1672 the Jesuit Pere Albanel crossed from the River St. Lawrence to the bottom of the Hudson Bay, and took formal possession for the King of France. Representatives of the King of England were there before him. In later times the question of priority of discovery was hotly debated.

Campaign in the North.

The occasion produced the man, and during the years of 1686-1697, Pierre Le Moyne, Sieur d'Iberville, a member of a family of fourteen children, three of whom were killed in service for their Prince and four of whom were governors of forts or provinces, began his remarkable career by crossing the wilderness between the St. Lawrence River and Hudson Bay and capturing Moose Factory from the English. He followed up his initial victory with such spirit that he fought many battles by land and by sea, one of the latter, that in Hudson Bay in 1697, being described by the best authorities, French and English, as the fiercest and bloodiest battle

of the war. When in 1697 he finally left the Great Bay and returned to France he could tell of six forts and seven governors of the Hudson Bay Company captured by him, besides his exploits in New England, Acadia and Newfoundland.

A Great Administrator.

In 1672, the same year in which Pere Albanel visited Hudson Bay, the Count de Frontenac was appointed Governor, and, next to Champlain, he is in every way the most conspicuous figure among the early holders of that office. The chief glory of his administration was the spirit of daring exploration and discovery by which it was characterized, the grandest achievement of all being the exploration of the Mississippi River and the Great West under Joliet, Marquette, La Salle and Hennepin.

The Fierce Iroquois.

The sufferings of the colonies from the Indians, more especially the Iroquois, were terrible during this period, and at times it seemed as if these would really succeed in driving the detested "pale faces" from the country. Then in 1688 came the breaking out of war between France and England, leading to hostilities between the French and New England colonies. These were carried on with varying success until the two nations came to terms, and by the treaty of Ryswick (1697) restored to each other whatever conquests they had succeeded in making. The following year Frontenac died, and was succeeded by De Callieres.

After four years of peace, the war of the Spanish succession again involved England and France in bloody strife, which, of course, had to be shared by the colonies, and thenceforward until 1713, tragic scenes were enacted from the ocean-laved shores of Acadia to the pathless forests of the West, in which French, English and Indian warriors outvied one another in lust for blood.

Acadia Surrendered. By the Treaty of Utrecht (1713) the whole of Acadia, Newfoundland and Hudson Bay were given to England, in whose possession they have ever since remained.

During the long period of peace that now ensued, the population of Canada, which by a census taken in 1721 was found to be only 25,600, slowly increased, and its internal development made considerable progress. The cultivation of the soil, was, however, neglected for the seductive fur trade, which possessed for the adventurous voyageur and coureur des bois a fascination that even its enormous profits did not wholly explain. Assuming the garb, these often assumed it with it the social habits of the Red men, living in their wigwams, marrying their daughters, and rearing a dusky brood of children from whom have descended the Metis or half-breeds of whom there are many representatives in our Western Provinces.

Capture of Louisburg. In 1744, the war of the Austrian succession once more involved the colonies in a series of hostilities, which were chiefly remarkable for the capture of the supposed impregnable fortress of Louisburg in Cape Breton by the English under Pepperell (1745), and the first appearance of George Washington, who was then a valued officer in the English colonies. The war terminated between the principals with the Treaty of Aix-la-Chapelle (1748), but this truce was regarded by both nations as only a breathing spell to prepare for the coming struggle that would decide the possession of the continent.

A Great War Begun. In 1754 the expected conflict opened with a brush between a small body of troops under Washington and a party of French soldiers under Jumonville at Fort Duquesne. Washington took the initiative. Then began that memorable war which, kindled among the forests of America, scattered its fires over the kingdoms of Europe

and the sultry Empire of the Great Mogul—the war made glorious by the deaths of Wolfe and Montcalm, the victories of Frederick and the exploits of Clive; the war which controlled the destinies of America, and was first in the chain of events which led on to her revolution with all its vast and undeveloped consequences.

Seven Years' Conflict.

The fluctuating fortunes of that fearful conflict, as the tide of war ebbed and flowed over the plains, down the rivers and through the forests of New France, New England, and the West and South, we cannot follow. It is known in history as the Seven Years' War, lasting as it did from 1755 to 1763, and being concluded by the Treaty of Paris in the latter year. During its continuance, many battles and sieges of great interest and importance took place, and many leaders won undying fame for themselves by their splendid achievements, but transcending all other events in magnitude and far-reaching consequence, and towering high above all other men in the imperishable glory of their deeds, the siege of Quebec, and the rival commanders, Wolfe and Montcalm, seem by their vastness to fill the whole picture as one looks back upon it from these present days.

Capture of Quebec.

On the 13th of September, 1759, Wolfe won Quebec on the fields of Abraham, and just one year later the capitulation of de Vaudreuil at Montreal before the combined armies of Amherst, Haviland and Murray completed the English conquest of Canada; the entire continent, with the sole exception of the little islands of St. Pierre and Miquelon on the Newfoundland Coast, passed into English hands.

Canada British.

Of the conquest we have already spoken at the close of the preceding period; it now remains to glance at the history of Canada since it has been a British possession.

A. de Celles, in making a comparison between the

French of France and those of Canada, says: "First, the French Canadians have self-government in its entirety. Just as our Federal Government and our Provincial Administration are the expression of the vox populi in its fullest sense, so the County Council—an autonomous body created by the elective franchise—moves in the smaller sphere of local affairs. But this is not all; the parish or village municipality, which also owes its existence to popular suffrage, is the starting point of the whole system and sets the machinery in motion. The county and parish or village council are but miniatures of the central power."

Sound Money.

Mr. Benjamin Sulte says "the conquest abolished the paper money of the old regime and substituted cash payments; enabled the habitants, who formed nine-tenths of the population at the time, to purchase where they pleased and what they pleased, instead of being obliged to go to the Company's or Government store; gave greater freedom for trade and abolished unjust monopolies; and paved the way for those Legislative measures which, at a subsequent date, conferred local self-government and schools upon the French subjects of Great Britain."

The printing press was introduced into Canada a year after the Treaty of Paris was signed, that is in 1764, and the first printed matter published in Canada was the prospectus of the Quebec Gazette, a newspaper which continued in existence till 10 or 12 years ago.

Race Feeling.

While there was, as a matter of course, a good deal of friction between "the new subjects," as the French were called, and the British settlers or "old subjects," yet under the temperate and judicious guidance of General Murray and Sir Guy Carleton matters proceeded hopefully and the country entered upon a career of prosperity, rapidly increasing ir population and wealth.

The Quebec Act.

In the year 1774, what was known as the Quebec Act was passed by the British Parliament. It extended the bounds of the Province from Labrador to the Mississippi, from the Ohio to the watershed of Hudson Bay. It established the right of the French to the observance of the Roman Catholic religion without civil disability, and confirmed the tithes to the clergy, exempting, however, all Protestants from their payment. It restored the French Civil Code and established the English administration of law in criminal cases. Supreme authority was vested in the Governor and a Council of from 17 to 23 members, the latter being nominated by the Crown and consisting for the most part of persons of British birth.

This Act gave profound dissatisfaction, not only to the English-speaking minority in Canada, who considered that their rights had been ruthlessly sacrificed, but also to the American colonists, who complained bitterly over the transfer to Canada of the country north and west of the Ohio River, for which they had so long and variously struggled. Despite all protests and appeals, the Act, which naturally gave great delight to the French population, continued to be the rule of the province for seventeen years.

The Revolutionary War.

The colonists were now called upon to pass through another war period—bloody but brief—and this time with their own countrymen across the border. In the year following the passing of the Quebec Act, the long smouldering fires of secession in the American colonies burst into flame. On April 19th, 1775, the minute men of Concord and Lexington fired the first shot of the Revolution, and the War of Independence began, which ended in the loss to England of some of her American colonies.

One of the first steps taken by the Secessionists was

to capture Ticonderoga and Crown Point on Lake Champlain, and thus possess the gateway to Canada. Forts St. John and Chambly soon followed, and on the 12th November Montreal succumbed. But the tide turned, when, flushed with their first successes, the Americans essayed the capture of Quebec, two daring attempts resulting only in disastrous failure. On the 4th July, 1776, the revolting colonies declared their independence and the war closed on the 19th October, 1781, with the surrender of Cornwallis at Yorktown, Virginia.

Loss by Treaty. By the terms of the treaty of peace signed at Versailles, September 3rd, 1783, Canada was despoiled of the magnificent region lying between the Mississippi and the Ohio, and was divided from the new nation designated "the United States of America" by the Great Lakes, the St. Lawrence, the 49th parallel of N. latitude, and the highlands dividing the waters falling into the Atlantic from those emptying themselves into the St. Croix River.

Loyalist Immigration. Throughout all the Secessionary movement, a considerable number of the American colonists had remained faithful to the Mother Country. At the close of the war it became painfully evident that there would be no peace for them within the boundaries of the United States. They found their property confiscated, their families ostracized and even their lives menaced. In this emergency, the British Parliament came to their aid. A sum exceeding three million pounds sterling was voted for the assistance of these United Empire Loyalists, as they were proud to call themselves; transport ships were provided for their conveyance to Canada and every possible arrangements made for their domiciliation in the sea-board provinces, and in what is now the Province of Ontario. It is estimated that no less than 25,000 persons were thus induced to find refuge in the British colonies,

where they proved of the utmost value in opening up and settling the country.

A Hundred Years Ago.

At that time (1784), the present Province of Ontario was almost a wilderness. The entire European population is said to have been under 2,000, and these dwelt chiefly in the vicinity of the fortified posts on the St. Lawrence, the Niagara and St. Clair Rivers. On the other hand, the population of Lower Canada was about 120,000. In order therefore, that the Western region might be developed, the Home Government offered generous grants of land to those who would settle there, besides assistance in the way of seed, stock and farming implements; under these inducements, the wilderness soon began to make way for smiling farms, thriving settlements and waving fields of grain.

Self-Government Demanded.

In 1786, Lord Dorchester (of whom we have already heard as Sir Guy Carleton) became Governor-General of British North America. The Canadian colonists now demanded the same constitutional privileges as were enjoyed in the Maritime Provinces, those latter having been organized in 1758-84, under special constitutional charters. The demand was met by the granting of the Habeas Corpus Act and of trial by jury in civil cases. But this did not content the Canadians, who asked also for an elective Legislative Assembly, and a larger measure of constitutional liberty. Accordingly in 1791 the Constitutional Bill was passed by the British Government. It divided Canada into two provinces, known as Upper and Lower Canada. Each province received a separate Legislature, consisting of a Legislative Council appointed by the Crown, a Legislative Assembly elected by the people, and a Governor appointed by the Crown and responsible only to it. The Assembly was elected for four years, and in it was vested the power of raising a revenue for roads, bridges, schools and similar public services.

Irresponsible Control.

A body which soon became obnoxious to the people was the Executive Council. It consisted of salaried officials of the Crown and judges, who were the confidential advisers of the Governor, although not accountable for their acts either to him or to the Legislative Assembly. They generally held seats in the Legislative Council, and virtually controlled the legislation by their predominant, yet irresponsible, influence.

The new Constitution, as Fox predicted, worked badly almost from the outset. The Legislative, and especially the Executive Councils, became objects of popular jealousy, and questions of both church and state soon began to divide the people into parties and engender bitter political animosities.

The First Law-makers.

The first Legislature of Lower Canada sat at Quebec in 1791, when that city contained about 7,000 inhabitants; and the first Legislature of Upper Canada, at Newark, the present town of Niagara, in 1792, where it continued to sit until 1797, when it removed to York (now Toronto), which city had been founded by Governor Simcoe two years previously.

The progress of the country in trade and population, and the development of its resources were rapid. The tide of emigration steadily increased, the Irish troubles of '98, especially, leading many hardy settlers to seek new homes in the virgin wilds of Canada.

As the province increased in wealth and population, the evils of a practically irresponsible government began to be felt. The Executive Council, composed of the Governor and five of his nominees, removable at his pleasure, gradually absorbed the whole administrative influence of the colony.

Canada Again Attacked.

In the year 1812-14 the young auxiliary nation was called upon to undergo a severe ordeal through the United States declaring war against Great Britain

partly because of sympathy with France and partly through misunderstandings between the two governments. The United States naturally selected Canada as the first object of attack. The position of the two countries was very unequal. Canada was totally unprepared for the conflict. She had less than 6,000 troops to defend 1,500 miles of frontier. Her entire population was under 300,000, while that of the United States was eight millions. Despite this startling disparity, the Canadians, French and English, rallying as one man to the loyal support of their government, bore themselves so nobly throughout the two years' struggle which ensued, that when it ended the advantage lay clearly upon their side, and the victories of Queenston Heights and Chateauguay are to-day pointed to with patriotic pride.

Trouble at Home.

At the close of the war, the domestic dissensions, suspended while all attention was concentrated upon the defence of the country, broke out afresh. In both Upper and Lower Canada the people began to assert themselves against the rule of the Executive Councils, and the breach between the two branches of the Legislature grew wider every day. Conflicting claims as to revenue and other matters also sprang up between the two provinces, to obviate which their union was suggested so far back as 1822, but then withdrawn in consequence of the intense opposition manifested by the French population of Lower Canada. In Lower Canada, Louis J. Papineau, and in Upper Canada, William Lyon Mackenzie, came forward as the champions of popular rights, and were after a time drawn into actual rebellion.

Self-Government Granted.

The struggle for responsible government, once entered upon, was never permitted to relax until at length, in 1840, acting upon the suggestions contained in the famous report of Lord Durham on the state

of the Canadas, the Home Government determined upon the union of the two provinces and the acknowledgement in the new constitution of the principle of responsible government. Resolutions were passed by the Provincial Legislatures in favor of the scheme, and a bill based upon them passed the Imperial Parliament in 1840, and went into effect on the 6th February, 1841. On that day the provinces of Upper and Lower Canada were peacefully united under one administration, and responsible government was firmly established, the designations becoming Canada East and Canada West.

Act of Union. The Act of Union provided that there should be one Legislative Council and one Legislative Assembly in which each province should be equally represented. The Council was composed of twenty life members, appointed by the Crown; the Assembly, of eighty-four members, elected by the people. The Executive Council or Cabinet comprised eight members, and was responsible to the Legislature. It was presided over by the Governor-General, who held his appointment from the Crown. The control of all public revenues was vested in the representatives of the people. In June, 1841, the first united Parliament met at Kingston. Three years later the seat of government was changed to Montreal, and on the destruction of the Parliament Buildings by a mob in 1849, it went to Toronto, remaining there till 1851, when it went to Quebec for a few years, becoming, in fact, an ambulatory Legislature, resting for a term in the capital of Canada West, and for another term in the capital of Canada East.

Fragments of Empire. For many years after the year 1764 the Province of Canada remained separated from the other parts of British North America. Before the separation from Great Britain of the Colonies, that later formed the United States of North America, statesmen were found to advocate a union of the Colonies in some form of federal com-

bination. After their independence had been secured, the New England and Southern States combined in a federal Union. The belief that this system was the best for countries of an extended area and sparse population was entertained by public men who remained true to the monarchial principles. Colonel Morse, who was appointed by the British Government to report on the best methods to be adopted in the changed condition of things consequent on the success of the American Revolution, advocated, in 1783, a union of all British North America "for the preservation of the fragments of British power on this continent." The division of the Canadian Province into Upper and Lower, however, under the Constitutional Act of 1791, destroyed for a time the idea of union. Lower Canada, peopled largely by the French, desired to retain the laws respecting land and property to which the people had been used. Upper Canada, settled largely by United Empire Loyalists and people of the English-speaking race desired the laws to which they had been accustomed. There was no way to meet the views of both except by constituting two provinces where one had been. So, for nearly a half century, the two provinces developed alongside of each other, each pursuing the course its own people deemed best.

British System Wanted.

In time the system of government which suited the infant Colonies gave evidence of being unsuited to their more developed state. A larger measure of self-government was demanded. Especially was it desired that responsible government should be introduced. In fact, the people believed that the British system in its entirety was best for them and that they were prepared for self-government to its fullest extent. Investigations by Lord Durham and other competent men convinced the Home Government that the time for consolidation had arrived. The Union Act of 1840 was the result, and in 1841 the two provinces, separated for 50

years, came together again, as we have seen. One of the most important Acts of the first Parliament was the Municipal Act, by which each township, county, town, village and city manages its own local affairs and has power to levy taxes for local improvements and local government.

Four Provinces Confederated.

The development of the United Provinces of Canada went steadily on. But in the evolution difficulties, internal and external, arose, partly in consequence of the more rapid growth of the western region, partly because of unsatisfactory trade relations with the United States. These difficulties were met by the Confederation of the four provinces, of Canada West, Canada East, New Brunswick and Nova Scotia, which had advanced together in knowledge of the principles of self-government and in practical experience of the application of these principles in the administration of public affairs.

The political training of the four provinces had brought them in the early sixties to the point where union became a necessity if further development and expansion were to be attained. In 1864 Lord Monck, then Governor-General of the two Canadas, communicated with the Lieutenant-Governors of the other provinces, with the result that a convention of Representatives met at Quebec, formulated a plan of union which secured the approval of the Legislatures of New Brunswick, Nova Scotia and Canada. The Parliament of Great Britain, as the Parliament of the Suzerain, passed the Act known as the Union Act of 1867, which is the Constitutional Act, under which, for a time, only the four provinces acted.

Land Rights Purchased.

One of the first acts looking to expansion of the new Confederation was the acquisition by purchase of the rights of the Hudson's Bay Company in the territory obtained by them under their Charter granted to them by King Charles II. in 1670.

This acquired, the Province of Manitoba was constituted in July, 1870. British Columbia, offered Responsible Government and the Canadian Pacific Railway, entered the Confederation in 1871. Prince Edward Island joined in 1873, and the remaining portions of Rupert's Land were divided during the years 1876-1895 into districts named: Keewatin, Assiniboia, Saskatchewan, Alberta, Athabasca, Mackenzie, Yukon, Ungava and Franklin.

Two More Provinces.

The process of development which had been the experience of the four original provinces, parties to the pact of Confederation in 1867, was closely followed in the new acquisitions. Manitoba and British Columbia received at once the boon of self-government in local affairs, being placed on an equality with the provinces in the east. The Northwest Territories were governed: 1st. By the Lieut.-Governor of Manitoba. 2nd. By a Lieut.-Governor and Executive Council, appointed after five years' experience of the personal rule of one man. 3rd. By a Lieut.-Governor and a Council, partly elected and partly nominated. 4th. By a Lieut.-Governor and an Advisory Council of four persons, selected by the Lieut.-Governor from the Legislative Assembly of 22 members, the Advisory Council acting on matters of finance, and holding office during pleasure. Legal experts were appointed by the Governor-in-Council to aid His Honour in legal questions. 5th. By a Lieut.-Governor and a Legislative Assembly with powers the same as those conferred on the other provinces under the Union Act of 1867, except the borrowing of money on the sole credit of the Territories. The Executive consisted of the Lieut.-Governor and a committee of four selected by the Lieut.-Governor. 6th. By a Lieut.-Governor and an Executive Council selected by the Lieut.-Governor from the Legislative Assembly, the members selected having to be re-elected by the people on accepting office under the Crown. The

last development, placing the Legislature of the Northwest Territories almost on an equality with the other Legislatures, was brought about in 27 years from the first organization of government. In these years the Northwest Territories passed from pupilage to the enjoyment of a large measure of home rule and responsible government. These Territories were unrepresented in the Federal Parliament till 1887, when, by Act of that Parliament, they were given two senators and four elected representatives.

The tenth Parliament of Canada, at its first session in 1905, passed an act creating the territories of Alberta, Assiniboia, Saskatchewan and Athabaska into the provinces of Alberta and Saskatchewan. The act comes into effect July 1, 1905. The province of Saskatchewan extends from the western boundary of Manitoba westward to the hundred and tenth meridian and Alberta from that meridian to the eastern boundary of British Columbia. From north to south each province extends from the International boundary to the sixtieth parallel.

Government in the North. Consequent upon the discovery of gold in the Yukon district, the judicial district of Yukon was established by Governor-General's Proclamation in 1897. The district was separated from the other provisional districts of the Northwest, and constituted a separate territory by Act of the Canadian Parliament, 1898, supplied with all the machinery required to enable the people to manage their own local affairs, through a Commissioner and Council of six, appointed by the Governor-in-Council. In 1899 the machinery was still further fitted for its work by the enlargement of the Council through the election of two representatives by the people. In 1902, to complete the system, and bring it in harmony with the several provincial systems, Yukon was given a representative in the Federal House of Commons, elected by its own people,

and possessed of all the authority belonging to any other representative sitting in the House of Commons.

From one end of Canada to the other, during all the years that the people have been developing a system of government suiting themselves, the loyalty of all to the British Crown has been the supreme and central idea. The first minister of Canada, Sir Wilfrid Laurier, said in a speech delivered in Paris in August, 1897: "I love the France which gave us being; I love the England which gave us liberty." Sir George Cartier conveyed the same idea when he said he was an Englishman speaking French.